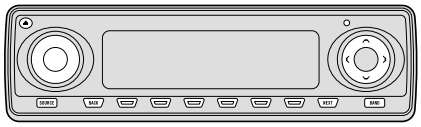
Service Manual

DEH-P930/UC



ORDER NO.
CRT2695

MULTI-CD/DAB CONTROL DSP HIGH POWER CD PLAYER WITH FM/AM TUNER

DEH-P930 UC
DEH-P9300 UC
DEH-P9350 ES

COMPACT disc DIGITAL AUDIO

● This service manual should be used together with the following manual(s):

Model No.	Order No.	Mech. Module	Remarks
CX-977	CRT2624	S9	CD Mech. Module:Circuit Description, Mech.Description, Disassembly

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PIONEER ELECTRONICS SERVICE INC. P.O.Box 1760, Long Beach, CA 90801-1760 U.S.A.
PIONEER EUROPE NV Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE.LTD. 253 Alexandra Road, #04-01, Singapore 159936

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● **CD Player Service Precautions**

1. For pickup unit(CXX1480) handling, please refer to"Disassembly"(see page 58).
   During replacement, handling precautions shall be taken to prevent an electrostatic discharge(protection by a jumper-solder).
2. During disassembly, be sure to turn the power off since an internal IC might be destroyed when a connector is plugged or unplugged.
3. Please checking the grating after changing the service pickup unit(see page 50).

1. SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer.
Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty.
If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

CAUTION

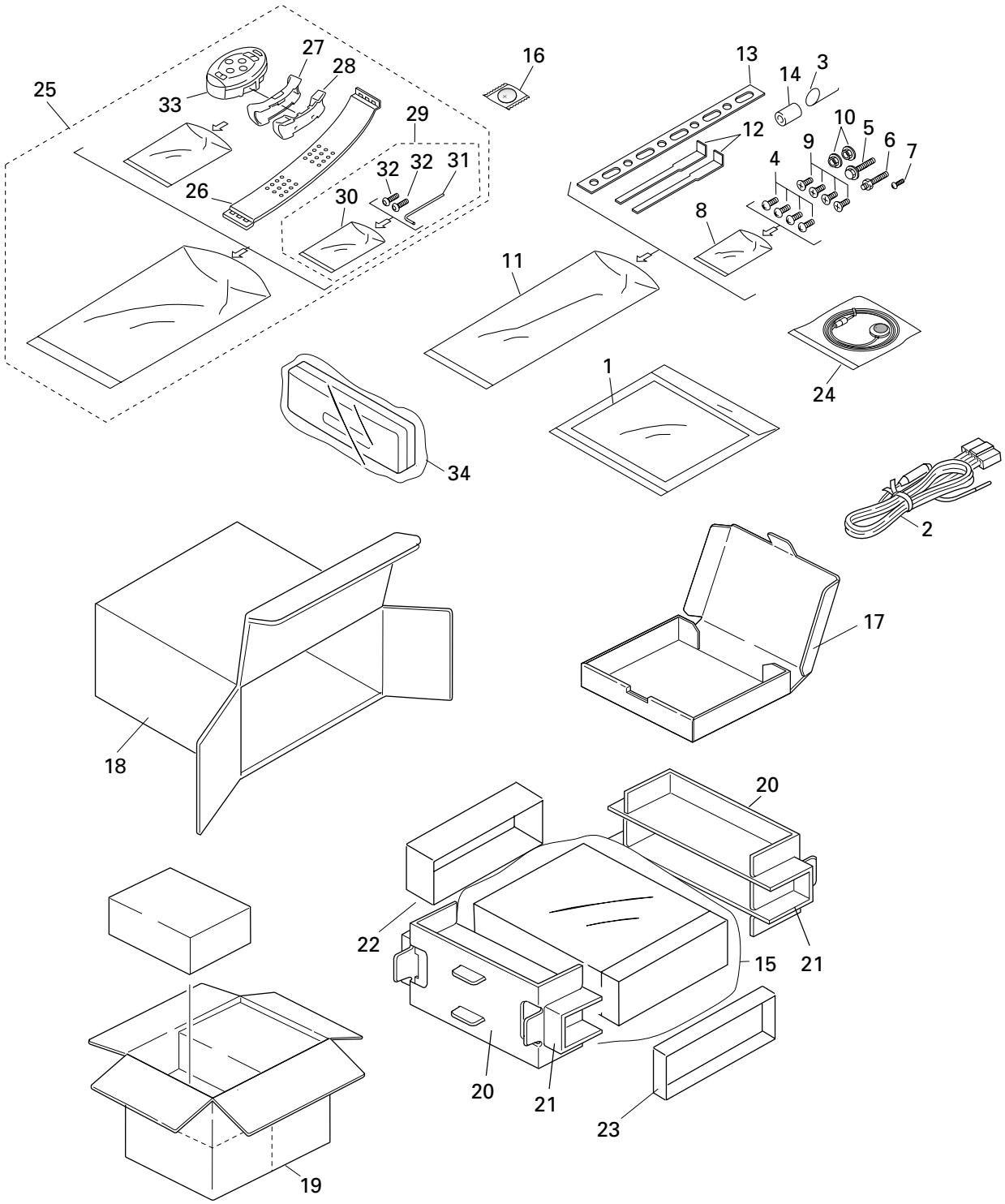
This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer.
Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty.
If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.
Health & Safety Code Section 25249.6 - Proposition 65

2. EXPLODED VIEWS AND PARTS LIST

2.1 PACKING (DEH-P930, P9300)



NOTE:

● Parts marked by "*" are generally unavailable because they are not in our Master Spare Parts List.

● Screws adjacent to ∇ mark on the product are used for disassembly.

(1) PACKING (DEH-P930, P9300) SECTION PARTS LIST

Mark	No.	Description	Part No.
	1-1	Owner's Manual	See Contrast table(2)
	1-2	Installation Manual	See Contrast table(2)
*	1-3	Caution Card	CRP1244
*	1-4	Warranty Card	See Contrast table(2)
*	1-5	Card	See Contrast table(2)
	1-6	Polyethylene Bag	CEG1116
	2	Cord Assy	CDE6563
	3	Spring	CBH-865
	4	Screw	BMZ50P060FMC
	5	Screw	CBA-102
	6	Screw	CBA1002
	7	Screw(M2x6)	CBA1120
*	8	Polyethylene Bag	CEG-127
	9	Screw	CMZ50P060FMC
	10	Nut	NF50FMC
*	11	Polyethylene Bag	CEG-158
	12	Handle	CNC5395
	13	Strap	CNC5402
	14	Bush	CNV1917
	15	Polyethylene Bag	CEG1185
*	16	Battery	CEX1030
	17	Sub Carton	CHA3167
	18	Carton	See Contrast table(2)
	19	Contain Box	See Contrast table(2)
	20	Protector	CHP2383
	21	Protector	CHP2384
	22	Protector	CHP2386
	23	Protector	CHP2430
	24	Microphone Assy	CPM1054
	25	Remote Control Assy	CXB6860
	26	Belt	CZN7661
	27	Holder Assy	CZX3172
	28	Holder Assy	CZX3173
	29	Screw Assy	CZE3169
*	30	Polyethylene Bag	CEG-127
*	31	Hexagonal Wrench	CZE3176
*	32	Screw	RMZ30H060FBK
	33	Remote Control Assy	CZX3246
	34	Case Assy	CXB3520

(2) CONTRAST TABLE

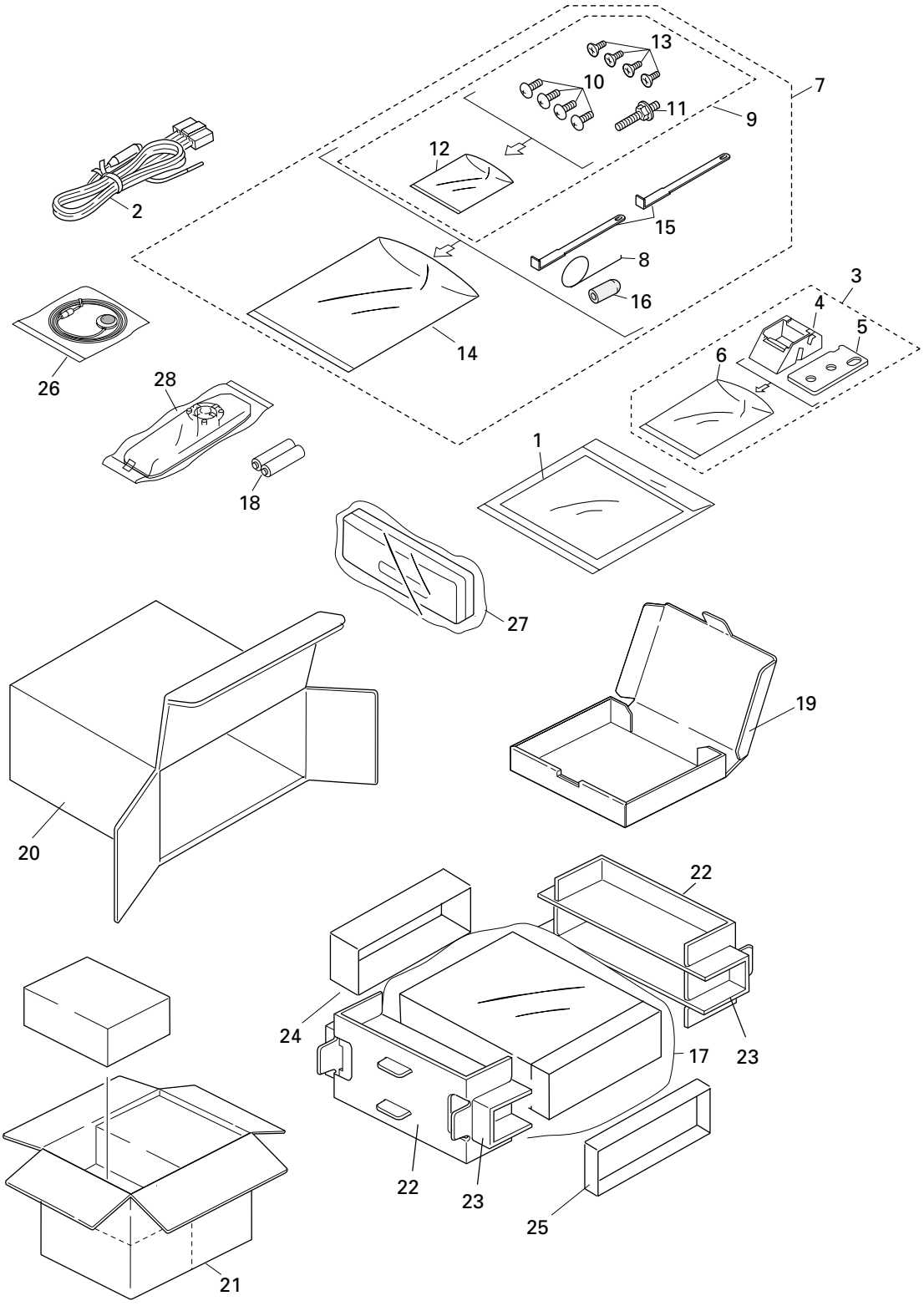
DEH-P930/UC and DEH-P9300/UC are constructed the same except for the following:

Mark	No.	Symbol and Description	Part No.	
			DEH-P930/UC	DEH-P9300/UC
	1-1	Owner's Manual	CRD3445	CRD3447
	1-2	Installation Manual	CRD3446	CRD3448
*	1-4	Warranty Card	CRY1070	Not used
*	1-5	Card	Not used	ARY1048
	18	Carton	CHG4414	CHG4413
	19	Contain Box	CHL4414	CHL4413

● Owner's Manual, Installation Manual

Model	Part No.	Language
DEH-P930/UC	CRD3445	English, French
	CRD3446	English, French
DEH-P9300/UC	CRD3447	English, French
	CRD3448	English, French

2.2 PACKING (DEH-P9350)



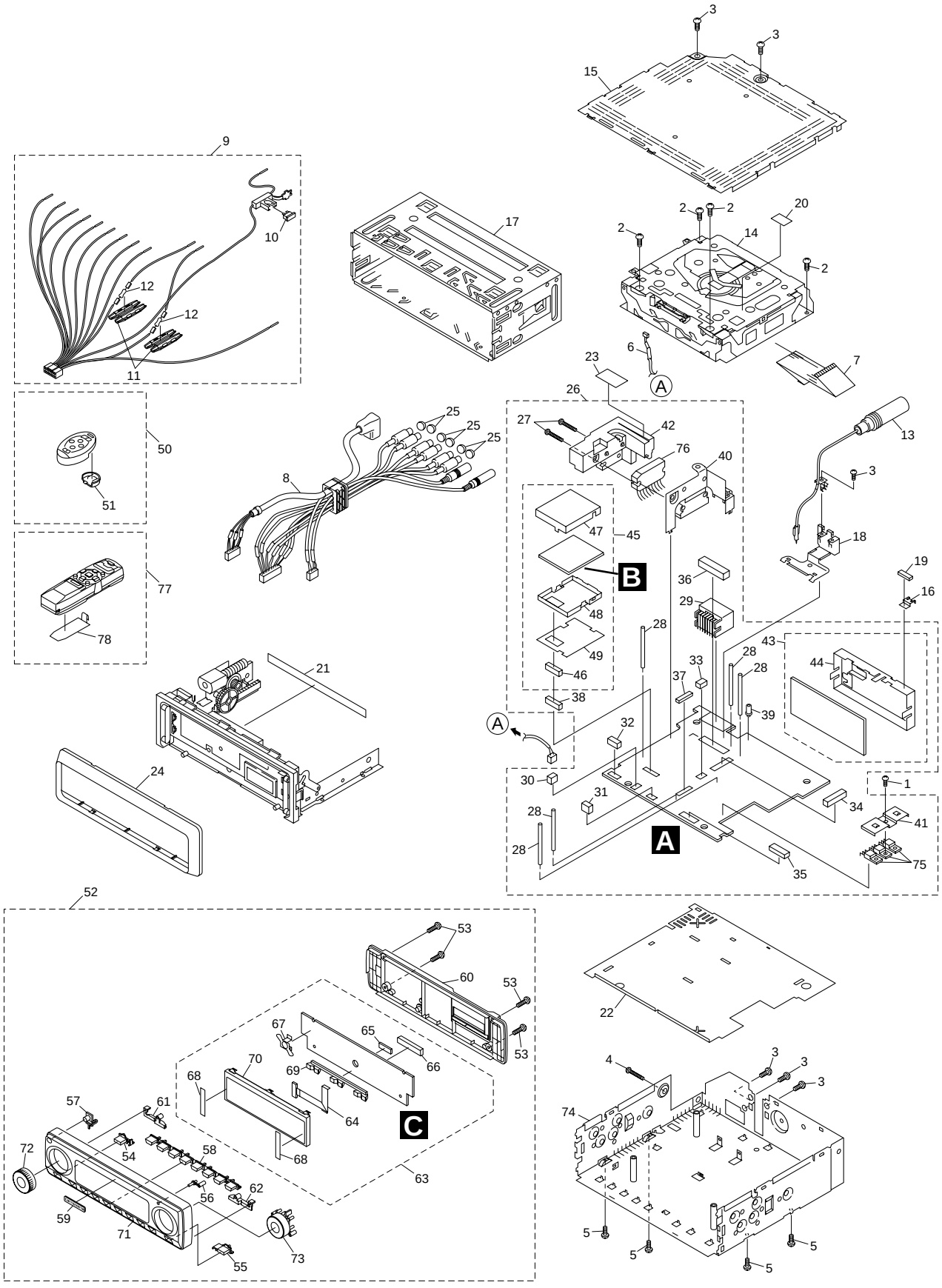
● PACKING (DEH-P9350) SECTION PARTS LIST

Mark	No.	Description	Part No.
	1-1	Owner's Manual	CRB1731
	1-2	Owner's Manual	CRD3449
	1-3	Owner's Manual	CRD3450
	1-4	Installation Manual	CRD3451
*	1-5	Caution Card	CRP1244
	1-6	Polyethylene Bag	CEG1116
	2	Cord Assy	CDE6563
	3	Base Assy	CEA2426
*	4	Base	CNS5031
*	5	Sheet	CZA3371
	6	Polyethylene Bag	CZE3188
	7	Accessory Assy	CEA2948
	8	Spring	CBH-865
	9	Screw Assy	CEA2941
	10	Screw	BMZ50P060FMC
	11	Screw	CBA1002
*	12	Polyethylene Bag	CEG-127
	13	Screw	CMZ50P060FMC
*	14	Polyethylene Bag	CEG-158
	15	Handle	CNC5395
	16	Bush	CNV1917
*	17	Polyethylene Bag	CEG1305
*	18	Battery	CEX1006
	19	Sub Carton	CHA3167
	20	Carton	CHG4412
	21	Contain Box	CHL4412
	22	Protector	CHP2383
	23	Protector	CHP2384
	24	Protector	CHP2386
	25	Protector	CHP2430
	26	Microphone Assy	CPM1054
	27	Case Assy	CXB3520
	28	Remote Control Assy	CXB3875

● Owner's Manual, Installation Manual

Part No.	Language
CRD3449	English, Spanish
CRD3450	Portuguese(B), Arabic
CRB1731	English
CRD3451	English, Spanish, Portuguese(B), Arabic

2.3 EXTERIOR(1)



(1) EXTERIOR(1) SECTION PARTS LIST

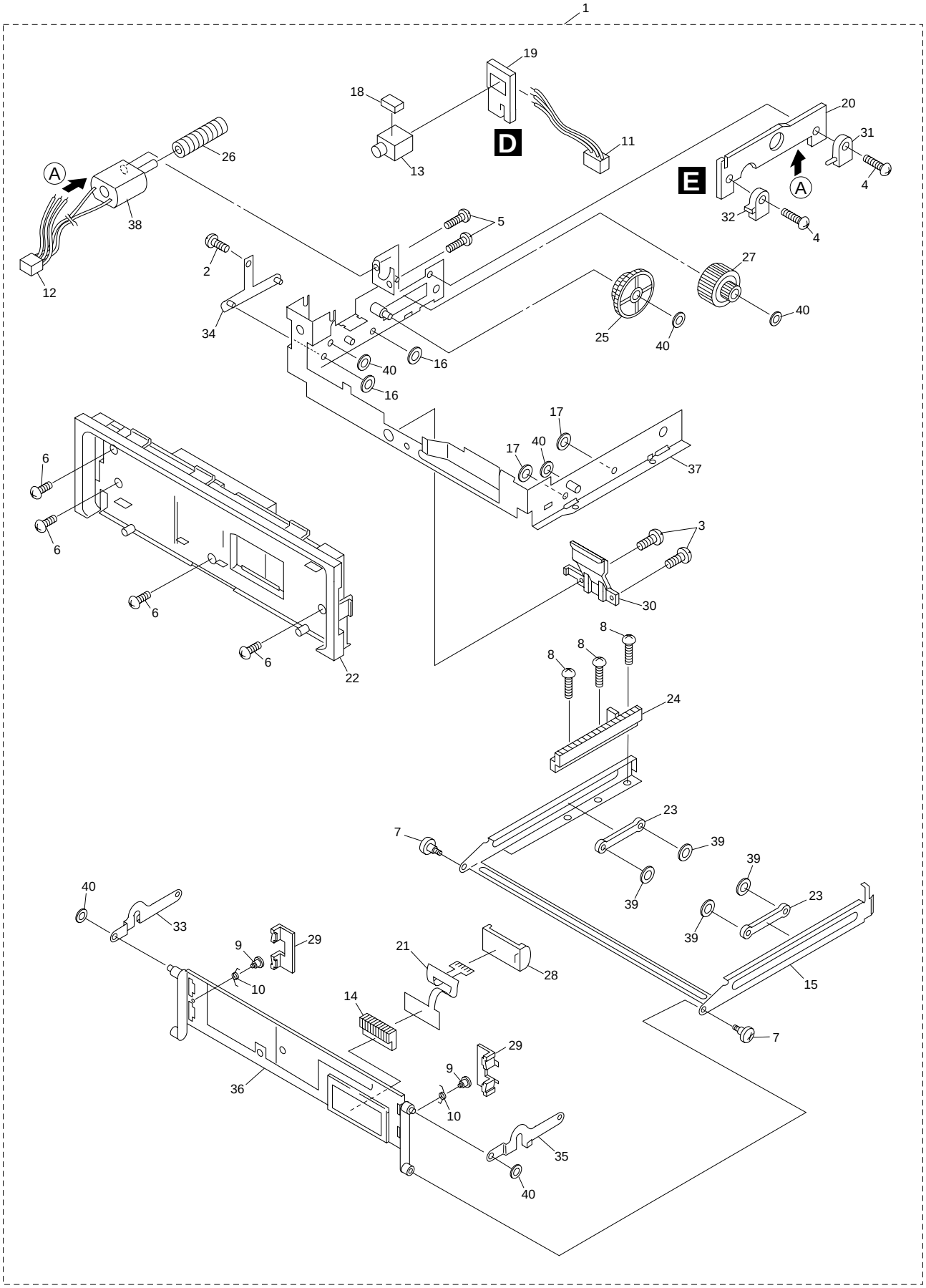
Mark	No.	Description	Part No.
	1	Screw	BMZ26P080FMC
	2	Screw	BSZ26P060FMC
	3	Screw	BSZ30P050FMC
	4	Screw	BSZ30P200FMC
	5	Screw(M2x2.5)	CBA1447
	6	Cord	CDE5536
	7	Connector	CDE6556
	8	Cord Assy	CDE6559
	9	Cord Assy	CDE6563
	10	Fuse(10A)	CEK1136
	11	Cap	CNS1472
	12	Resistor	RS1/2PMF102J
	13	Antenna Cable	CDH1308
	14	CD Mechanism Module(S9U)	CXK5550
	15	Case	CNB2426
	16	Holder	CNC6469
	17	Holder	CNC8659
	18	Holder	CNC9299
	19	Cushion	CNM4870
	20	Cushion	CNM6065
	21	Cover	CNM6489
	22	Insulator	CNM7180
	23	Sheet	CNM7387
	24	Panel	See Contrast table(2)
	25	Cap	CNV6727
	26	Tuner Amp Unit	See Contrast table(2)
	27	Screw	BMZ26P160FMC
	28	Clamper	CEF1008
	29	Plug(CN901)	CKM1278
	30	Plug(CN702)	CKS-783
	31	Plug(CN131)	CKS-784
	32	Plug(CN851)	CKS-786
*	33	Plug(CN201)	CKS1052
*	34	Plug(CN101)	CKS1058
	35	Connector(CN801)	CKS1536
	36	Connector(CN351)	CKS3606
	37	Connector(CN701)	CKS3918
	38	Connector(CN251)	CKS4453
	39	Mini Pin Jack(CN451)	CKX1046
	40	Holder	CNC8169
	41	Holder	CNC9290
	42	Heat Sink	CNR1535
	43	FM/AM Tuner Unit	CWE1563
	44	Holder	CNC8815
	45	DSP Unit	CWM7704
	46	Connector(CN1501)	CKS4452
	47	Holder	CNC9295
	48	Holder	CNC9296
	49	Insulator	CNM7181
	50	Remote Control Assy	See Contrast table(2)
	51	Cover	See Contrast table(2)
	52	Detach Grille Assy	See Contrast table(2)
	53	Screw	BPZ20P080FZK
	54	Button(SOURCE)	CAC6867
	55	Button(BAND)	CAC6870
	56	Button(RESET)	CAC6872
	57	Button(EJECT)	CAC6962
	58	Button(Multi-function)	CAC7307
*	59	Badge	See Contrast table(2)
	60	Cover	CNS6371
	61	Lighting Conductor	CNV6557
	62	Lighting Conductor	CNV6674
	63	Keyboard Unit	CWM7713
	64	Connector	CDE6741
	65	Connector(CN1902)	CKS3995
	66	Connector(CN1901)	CKS4435
	67	Spacer	CNM7409
	68	Spacer	CNM7529
	69	Lighting Conductor	CNV6554
	70	OEL Module	MXK8014
	71	Grille Unit	See Contrast table(2)
	72	Knob Unit(VOLUME)	CXB7084
	73	Button Unit(▲/▼/◄/►)	CXB7440
	74	Chassis Unit	CXB7091
	75	Transistor(Q722, 751, 921)	2SD2396
	76	IC(IC301)	PAL006A
	77	Remote Control Assy	See Contrast table(2)
	78	Battery Cover	See Contrast table(2)

(2) CONTRAST TABLE

DEH-P930/UC, DEH-P9300/UC and DEH-P9350/ES are constructed the same except for the following:

Mark	No.	Symbol and Description	Part No.		
			DEH-P930/UC	DEH-P9300/UC	DEH-P9350/ES
	24	Panel	CNS6528	CNS6528	CNS6360
	26	Tuner Amp Unit	CWM7699	CWM7700	CWM7701
	50	Remote Control Assy	CZX3246	CZX3246	Not used
	51	Cover	CZN7655	CZN7655	Not used
	52	Detach Grille Assy	CXB7059	CXB7060	CXB7061
*	59	Badge	CAH1755	CAH1754	CAH1754
	71	Grille Unit	CXB7075	CXB7076	CXB7077
	77	Remote Control Assy	Not used	Not used	CXB3875
	78	Battery Cover	Not used	Not used	CNS5032

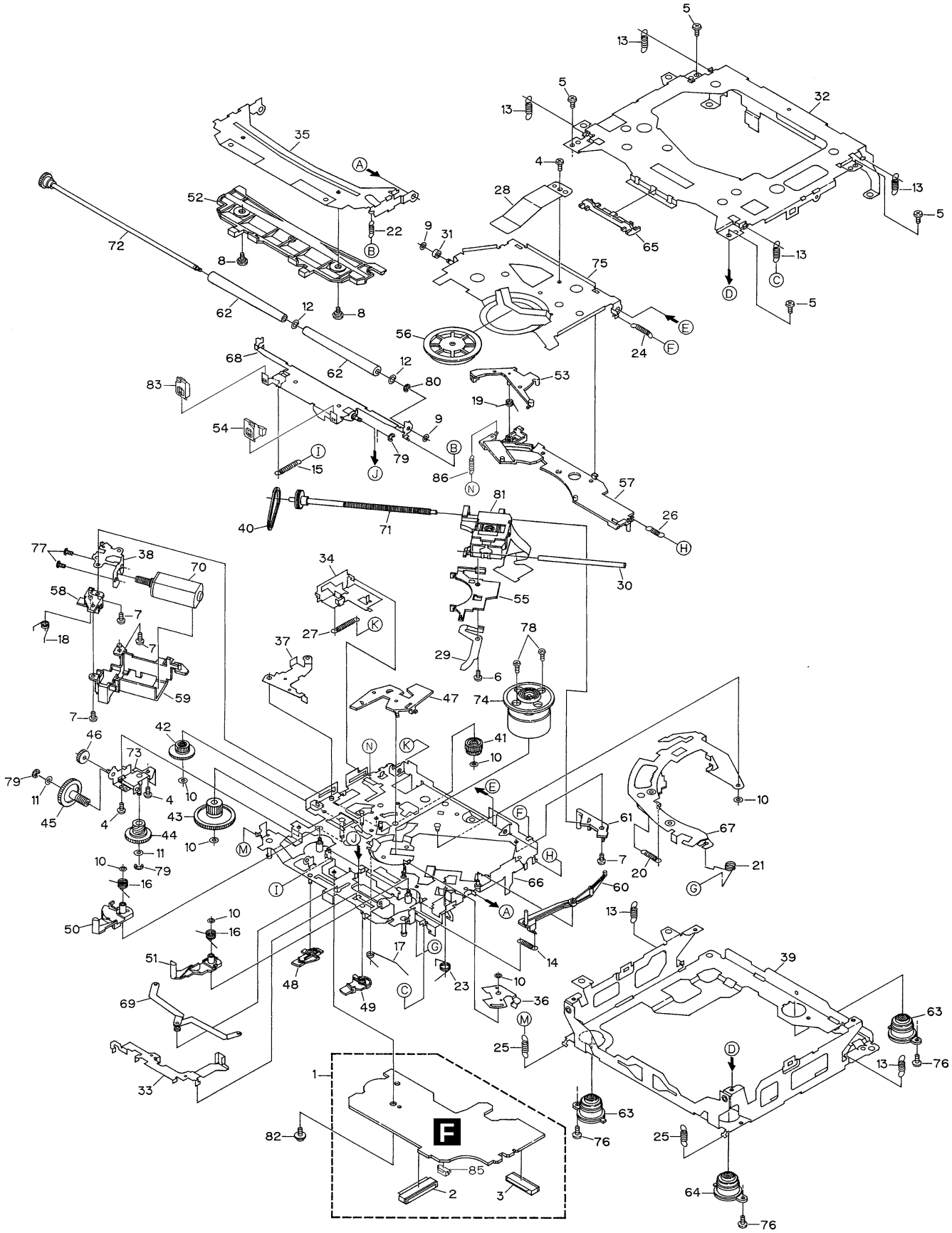
2.4 EXTERIOR(2)



● EXTERIOR(2) SECTION PARTS LIST

Mark No.	Description	Part No.
1	Panel Assy	CXB6738
2	Screw	BMZ20P030FMC
3	Screw	BPZ20P060FMC
4	Screw(M2x7)	CBA1060
5	Screw(M2x3)	CBA1061
6	Screw(M2x3)	CBA1154
7	Screw(M2x1.5)	CBA1430
8	Screw(M1.4x4)	CBA1454
9	Screw(M2x1.5)	CBA1528
10	Spring	CBH2445
11	Cord	CDE5856
12	Cord	CDE5960
13	Mini-jack(CN4602)	CKN1015
14	Connector	CKS4436
15	Frame	CNC8201
16	Spacer	CNM6155
17	Spacer	CNM6156
18	Spacer	CNM7427
19	PCB	CNP5341
20	PCB	CNP5941
21	PCB	CNP6124
22	Panel	CNS6397
23	Guide	CNV5696
24	Rack	CNV5697
25	Gear	CNV5698
26	Gear	CNV5761
27	Gear Unit	CNV5762
28	Cover	CNV6573
29	Holder	CNV6575
30	Lighting Conductor	CNV6574
31	Switch(S951)	CSN1012
32	Switch(S952)	CSN1022
33	Arm Unit	CXB3574
34	Bracket Unit	CXB3577
35	Arm Unit	CXB3866
36	Holder Unit	CXB6726
37	Frame Unit	CXB6727
38	Motor(M951)	CXM1085
39	Washer	2-1816-0035-D2-00
40	Washer	2-1821-0045-D2-00

2.5 CD MECHANISM MODULE

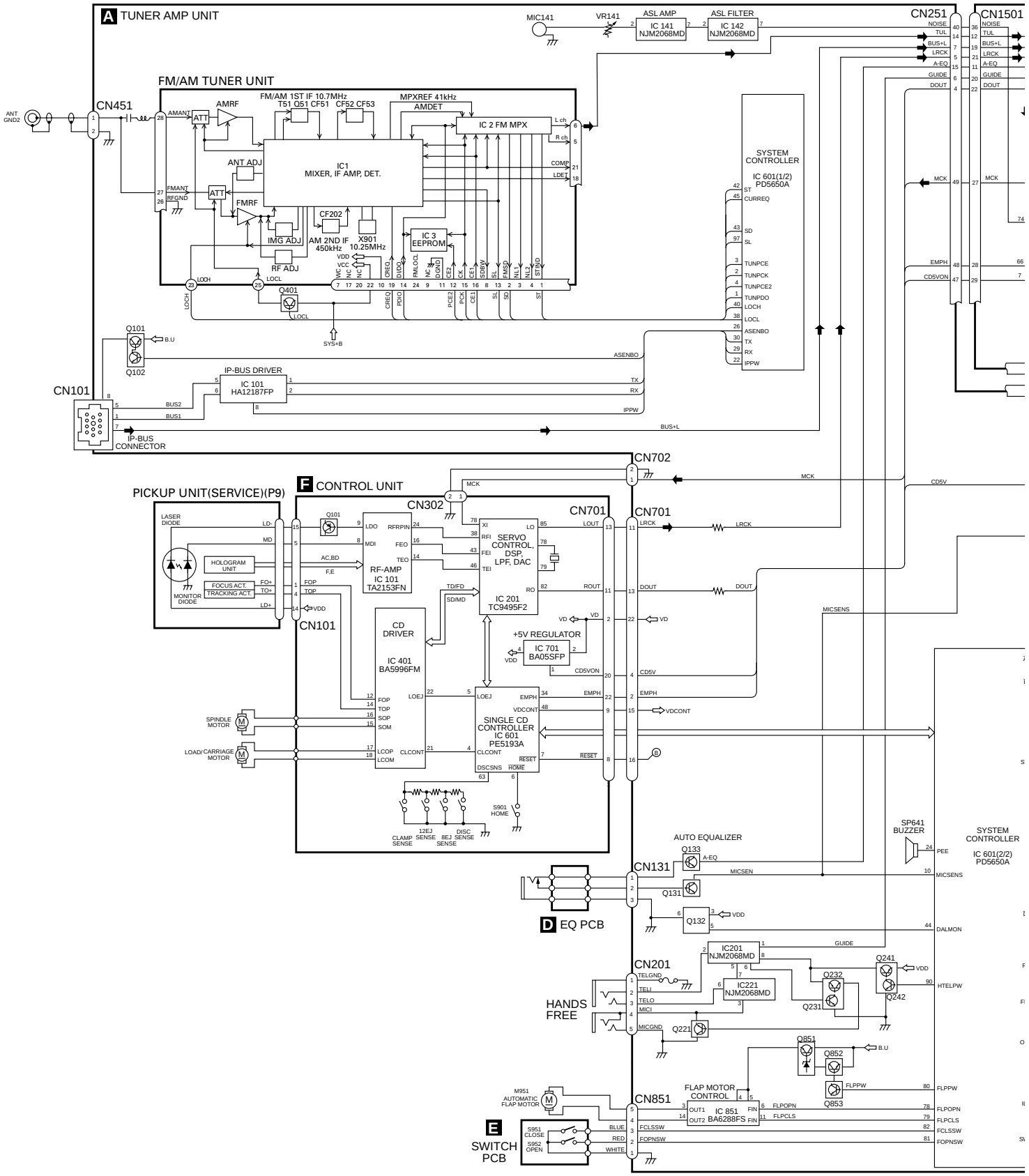


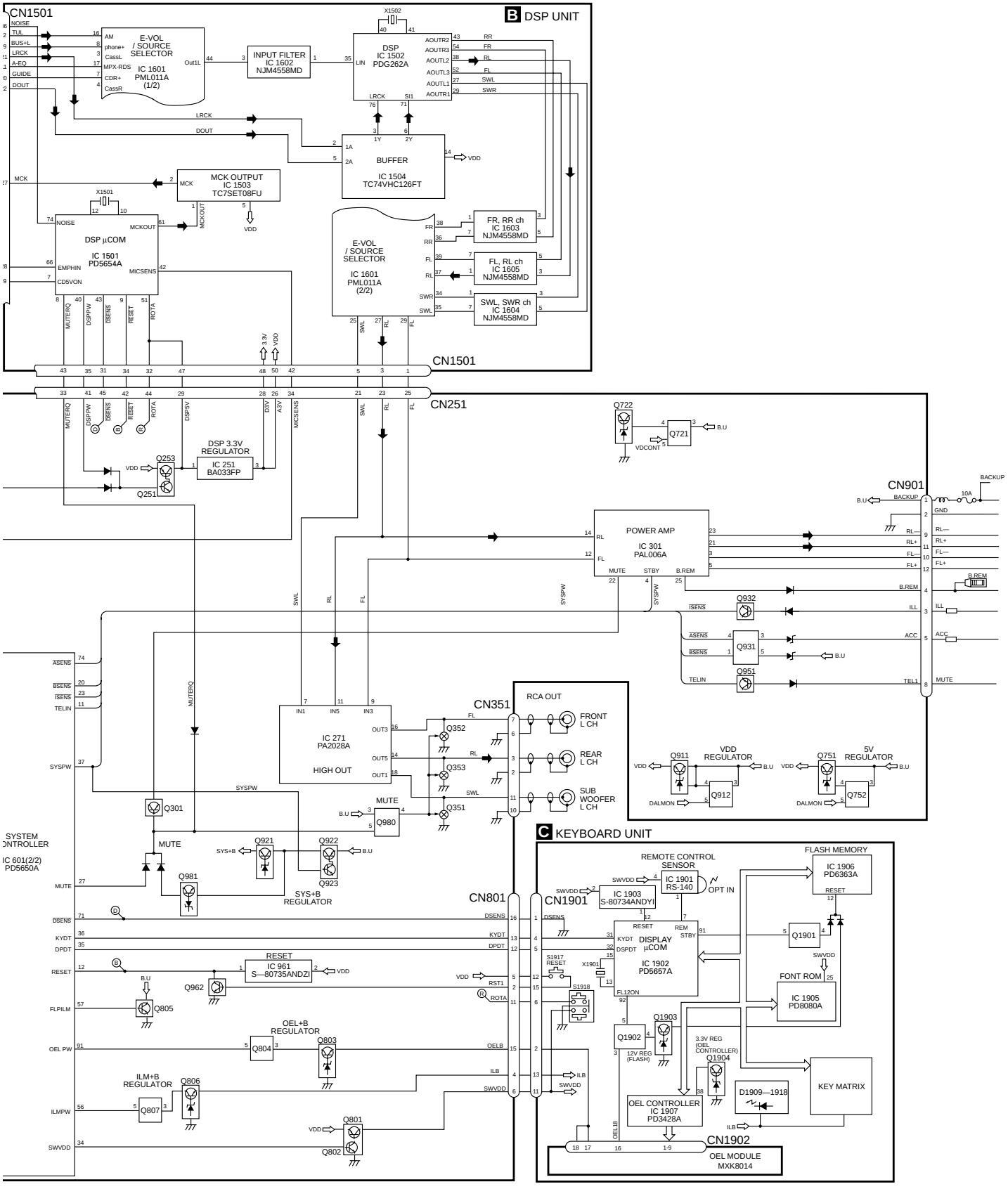
● CD MECHANISM MODULE SECTION PARTS LIST

Mark No.	Description	Part No.
1	Control Unit	CWX2502
2	Connector(CN701)	CKS1961
3	Connector(CN101)	CKS3486
4	Screw	BMZ20P025FMC
5	Screw	BSZ20P040FMC
6	Screw(M2x4)	CBA1362
7	Screw(M2x3)	CBA1527
8	Screw	CBA1545
9	Washer	CBF1037
10	Washer	CBF1038
11	Washer	CBF1039
12	Washer	CBF1060
13	Spring	CBH2378
14	Spring	CBH2379
15	Spring	CBH2380
16	Spring	CBH2381
17	Spring	CBH2382
18	Spring	CBH2383
19	Spring	CBH2384
20	Spring	CBH2385
21	Spring	CBH2386
22	Spring	CBH2387
23	Spring	CBH2390
24	Spring	CBH2391
25	Spring	CBH2392
26	Spring	CBH2426
27	Spring	CBH2444
28	Spring	CBL1494
29	Spring	CBL1495
30	Shaft	CLA3845
31	Roller	CLA3910
32	Frame	CNC8946
33	Lever	CNC8948
34	Lever	CNC8949
35	Arm	CNC8951
36	Arm	CNC9016
37	Arm	CNC9017
38	Bracket	CNC9123
39	Frame	CNC8947
40	Belt	CNT1086
41	Gear	CNV6886
42	Gear	CNV6316
43	Gear	CNV6317
44	Gear	CNV6318
45	Gear	CNV6319
46	Gear	CNV6320
47	Arm	CNV6322
48	Arm	CNV6323
49	Arm	CNV6324
50	Arm	CNV6325
51	Arm	CNV6326
52	Guide	CNV6327
53	Arm	CNV6924
54	Guide	CNV6329
55	Rack	CNV6330
56	Clamper	CNV6331
57	Arm	CNV6332
58	Guide	CNV6333
59	Cover	CNV6334
60	Arm	CNV6335
61	Guide	CNV6336
62	Roller	CNV6338
63	Damper	CNV6661
64	Damper	CNV6662
65	Guide	CNV6484
66	Chassis Unit	CXB5898
67	Arm Unit	CXB7983
68	Arm Unit	CXB5900
69	Arm Unit	CXB5901
70	Motor Unit(M2)	CXB5903
71	Screw Unit	CXB5904
72	Gear Unit	CXB5905
73	Bracket Unit	CXB6006
74	Motor Unit(M1)	CXB6007
75	Arm Unit	CXB6237
76	Screw(M2x5)	EBA1028
77	Screw	JFZ20P020FMC
78	Screw	JGZ17P020FZK
79	Washer	YE15FUC
80	Washer	YE20FUC
81	Pickup Unit(Service)(P9)	CXX1480
82	Screw	IMS26P030FMC
83	Guide	CNV6832
84	•••••	
85	Connector(CN302)	CKS2191
86	Spring	CBH2509

3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

3.1 BLOCK DIAGRAM

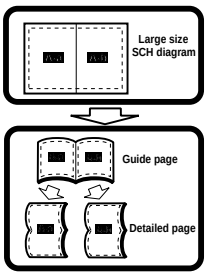


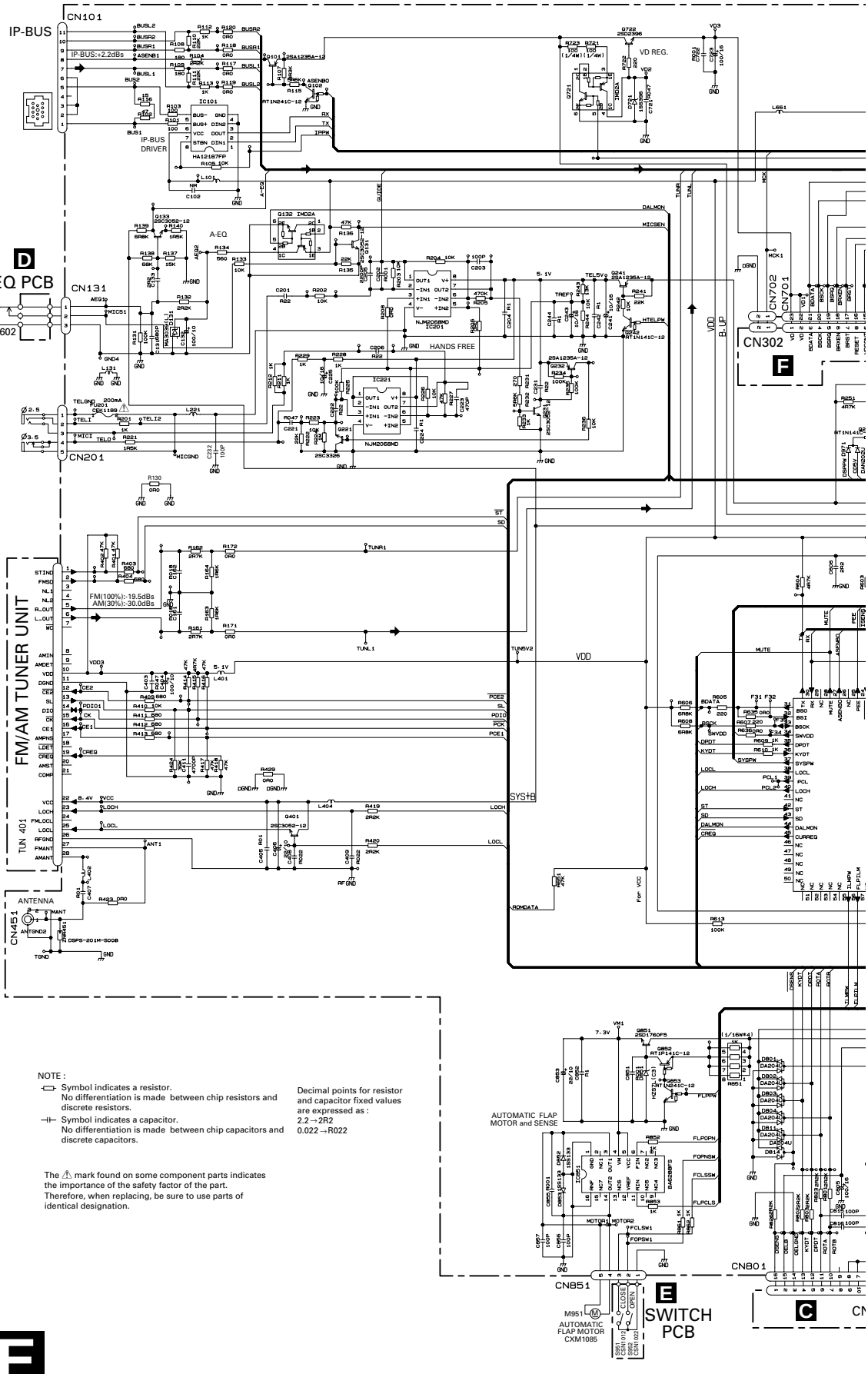

B DSP UNIT
CN1501
E-VOL / SOURCE SELECTOR IC 1601 PML011A (1/2)
INPUT FILTER IC 1602 NJM4558MD
DSP IC 1502 PDG262A
BUFFER IC 1504 TC74VHC126FT
MCK OUTPUT IC 1503 TC7SET08FU
DSP µCOM IC 1501 PD5654A
E-VOL / SOURCE SELECTOR IC 1601 PML011A (2/2)
FR, RR ch IC 1603 NJM4558MD
FL, RL ch IC 1605 NJM4558MD
SWL, SWR ch IC 1604 NJM4558MD
CN251
DSP 3.3V REGULATOR IC 251 BA033FP
POWER AMP IC 301 PAL006A
CN901
IC 271 PA2028A HIGH OUT
CN351
RCA OUT
FRONT L CH
REAR L CH
SUB WOOFER L CH
VDD REGULATOR
5V REGULATOR
SYSTEM CONTROLLER IC 601(2/2) PD5650A
SYS+B REGULATOR
OEL+B REGULATOR
ILM+B REGULATOR
C KEYBOARD UNIT
CN801
CN1901
REMOTE CONTROL SENSOR IC 1901 RS-140
IC 1903 S-80734ANDYI
DISPLAY µCOM IC 1902 PD5657A
FLASH MEMORY IC 1906 PD6363A
FONT ROM IC 1905 PD8080A
OEL CONTROLLER IC 1907 PD3428A
KEY MATRIX
CN1902
OEL MODULE MXK8014

3.2 OVERALL CONNECTION DIAGRAM(GUIDE PAGE)

Note: When ordering service parts, be sure to refer to "EXPLODED VIEWS AND PARTS LIST" or "ELECTRICAL PARTS LIST".

A-a





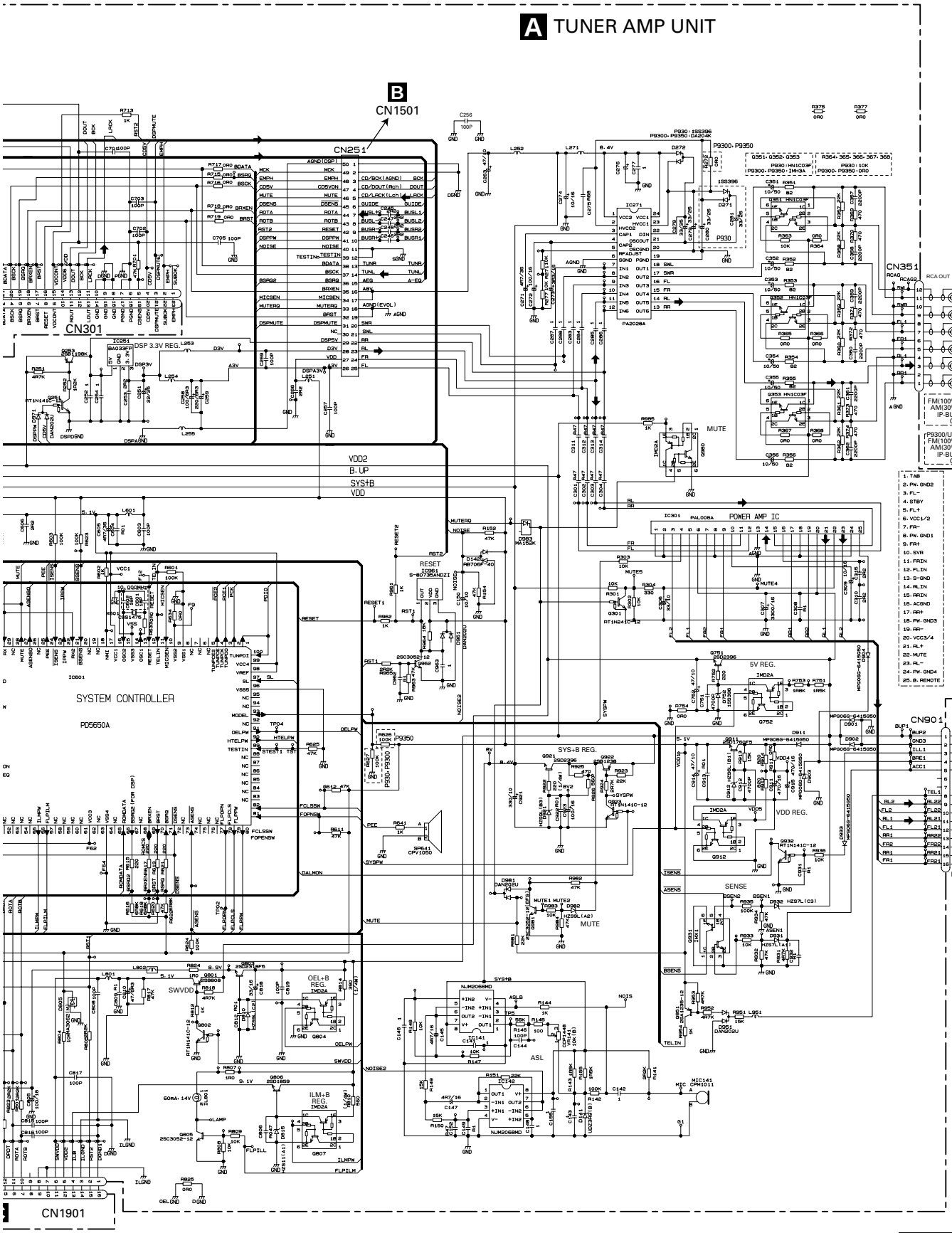
NOTE :

- Symbol indicates a resistor. No differentiation is made between chip resistors and discrete resistors.
- Symbol indicates a capacitor. No differentiation is made between chip capacitors and discrete capacitors.

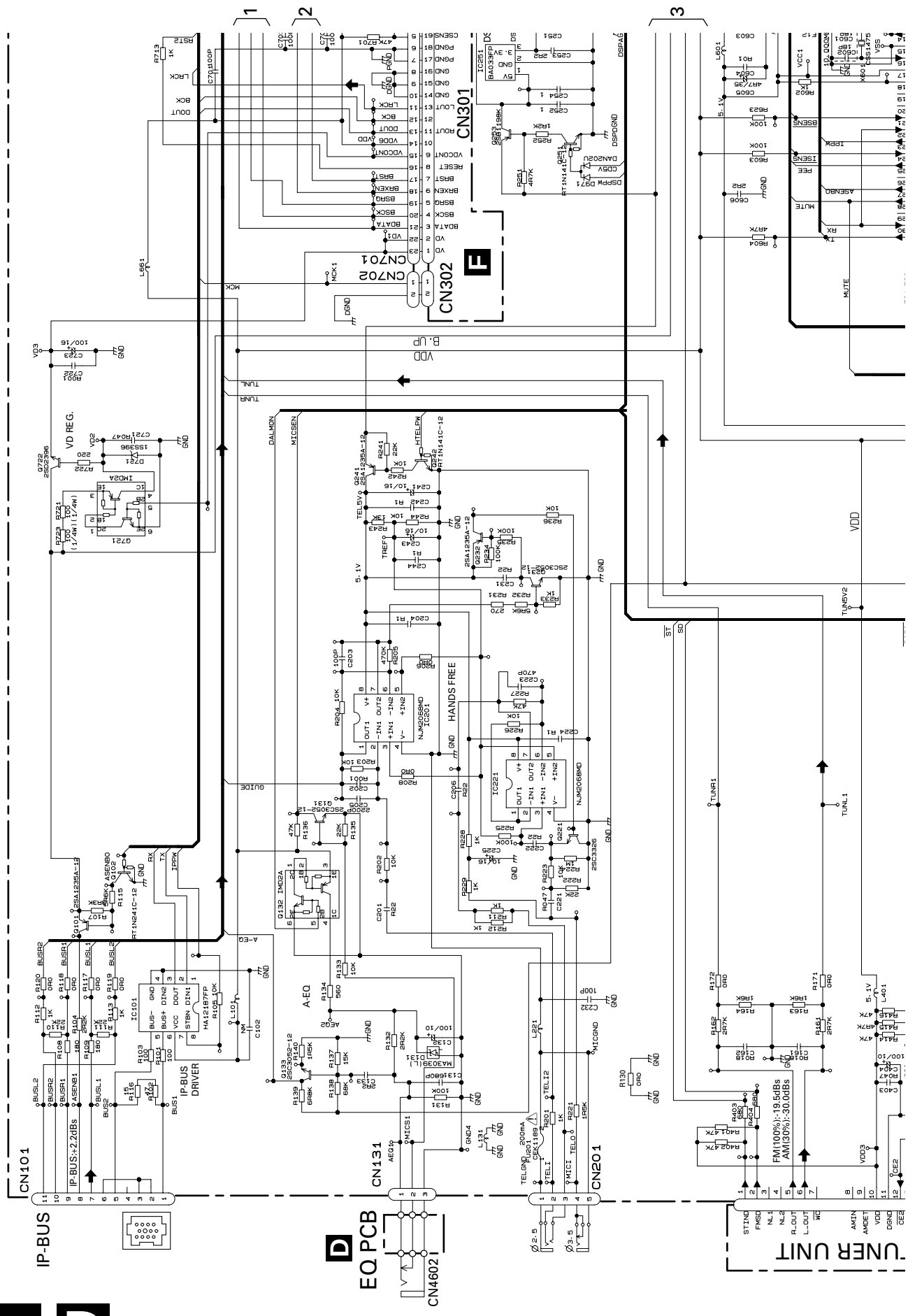
Decimal points for resistor and capacitor fixed values are expressed as :
2.2→2R2
0.022→R022

The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

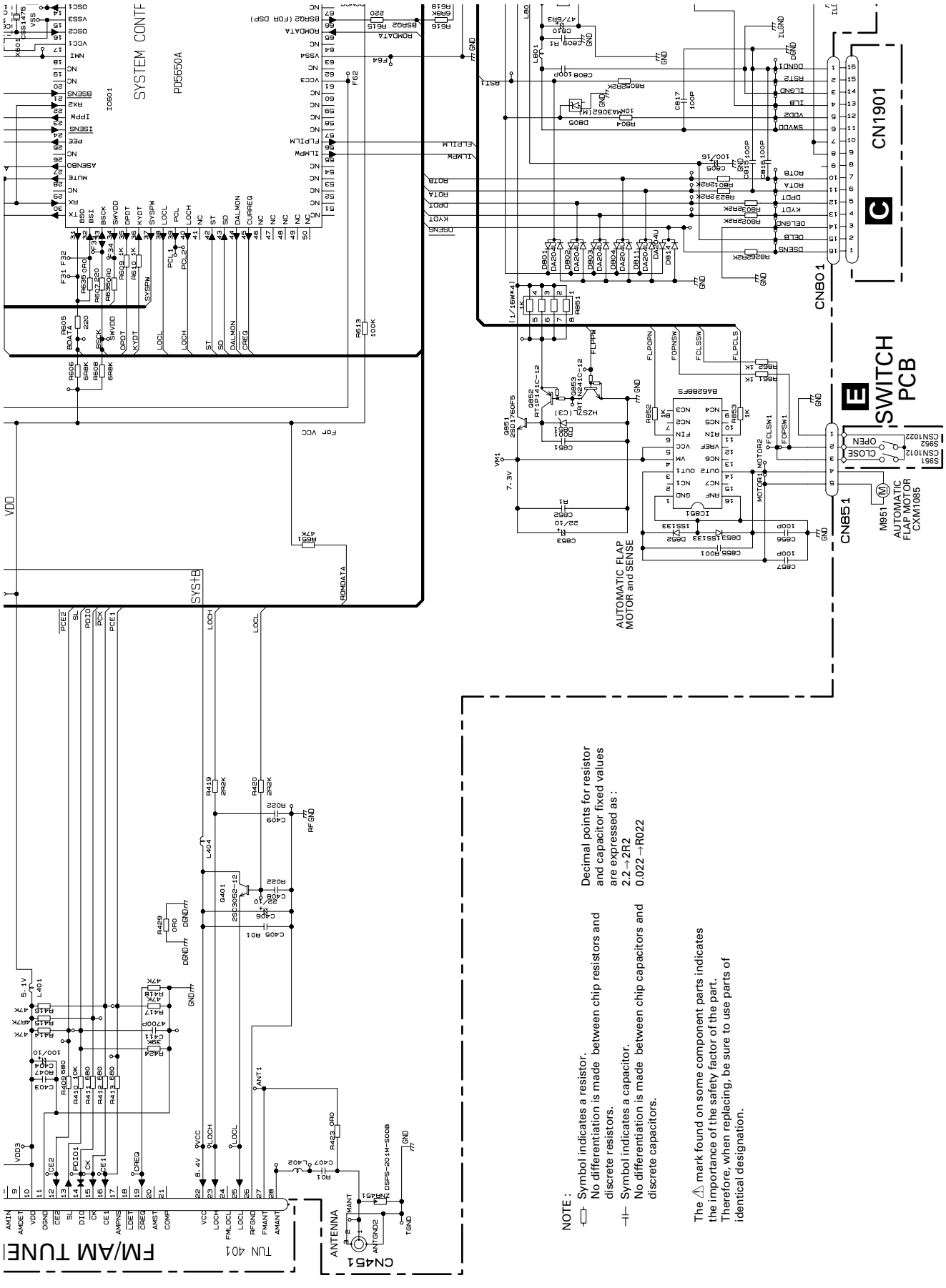
A-b


A TUNER AMP UNIT
B
CN1501
CN251
CN301
CN351
CN901
CN1901
DSP 3.3V REG.
SYSTEM CONTROLLER
PD5650A
POWER AMP IC
PAL006A
MUTE
VDD2
B.UP
SYS+B
VDD
5V REG.
SYS+B REG.
VDD REG.
OEL+B REG.
ILM+B REG.
SENSE
ASL
RESET
P930:1SS396
P9300·P9350·DA204U
P9300·P9350
P930:HN1C03F
P9300·P9350:1M10A
P930:10K
P9300·P9350:ORO
P930/UC
FM(100%):+12.9dBs
AM(30%): +2.4dBs
IP-BUS:+18.5dBs
CD:+19.5dBs
P9300/UC, P9350/ES
FM(100%): +9.9dBs
AM(30%): -0.6dBs
IP-BUS:+15.5dBs
CD:+15.5dBs
FM(100%):+28.4dBs
AM(30%):+17.9dBs
IP-BUS:+34.0dBs
CD:+35.0dBs

A-a A-b

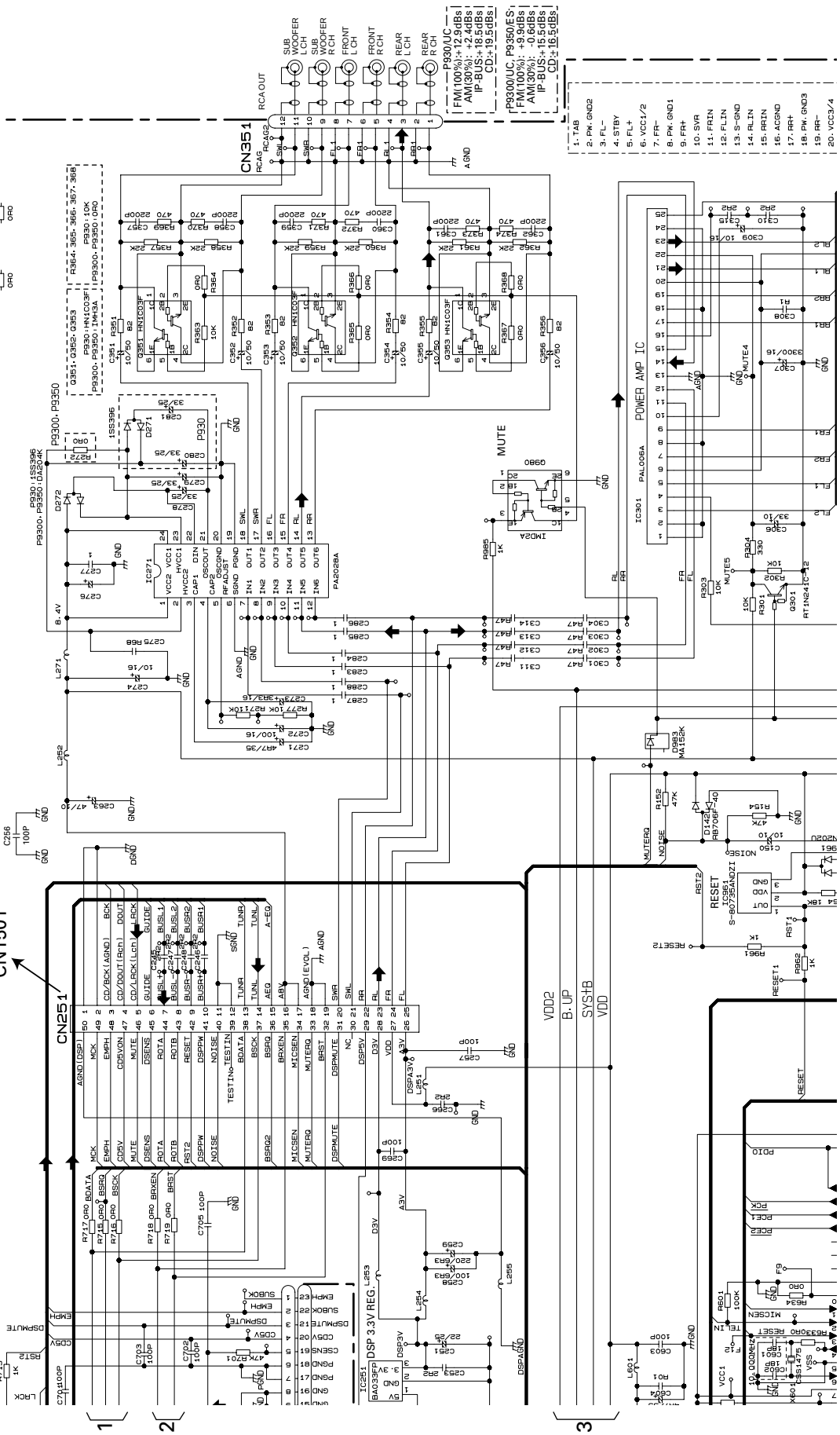

CN301
CN302
CN701
CN702
CN101
CN131
CN201
CN4602
IP-BUS
EQ PCB
TUNER UNIT
IP-BUS DRIVER
VD REG.
HANDS FREE
A-EQ
IP-BUS-+2.2dBs
FM(100%):-19.5dBs
AM(30%):-30.0dBs

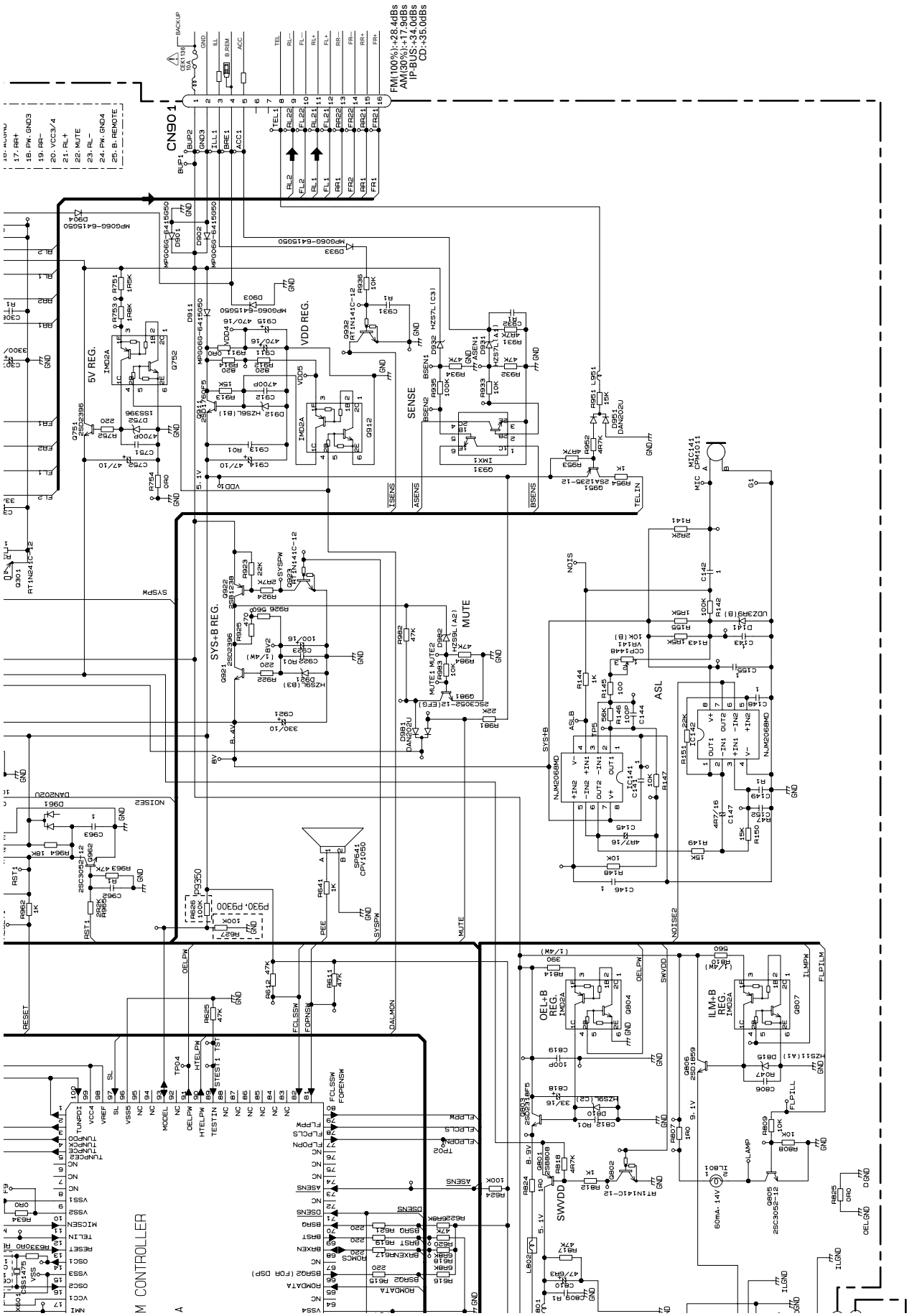
A-a D


A-b
A-a
SYSTEM CONTF
PD5650A
IC801
SYSHB
CN1901
C
CN801
SWITCH PCB
E
CN851
CN451
TUN 401
FM/AM TUNE
AUTOMATIC FLAP MOTOR and SENSE
AUTOMATIC FLAP MOTOR CXM1085
M951
OPEN
CLOSE
S952
S951
VDD
ROMDATA
NOTE :
Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.
Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.
Decimal points for resistor and capacitor fixed values are expressed as :
2.2→2R2
0.022→R022
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part.
Therefore, when replacing, be sure to use parts of identical designation.

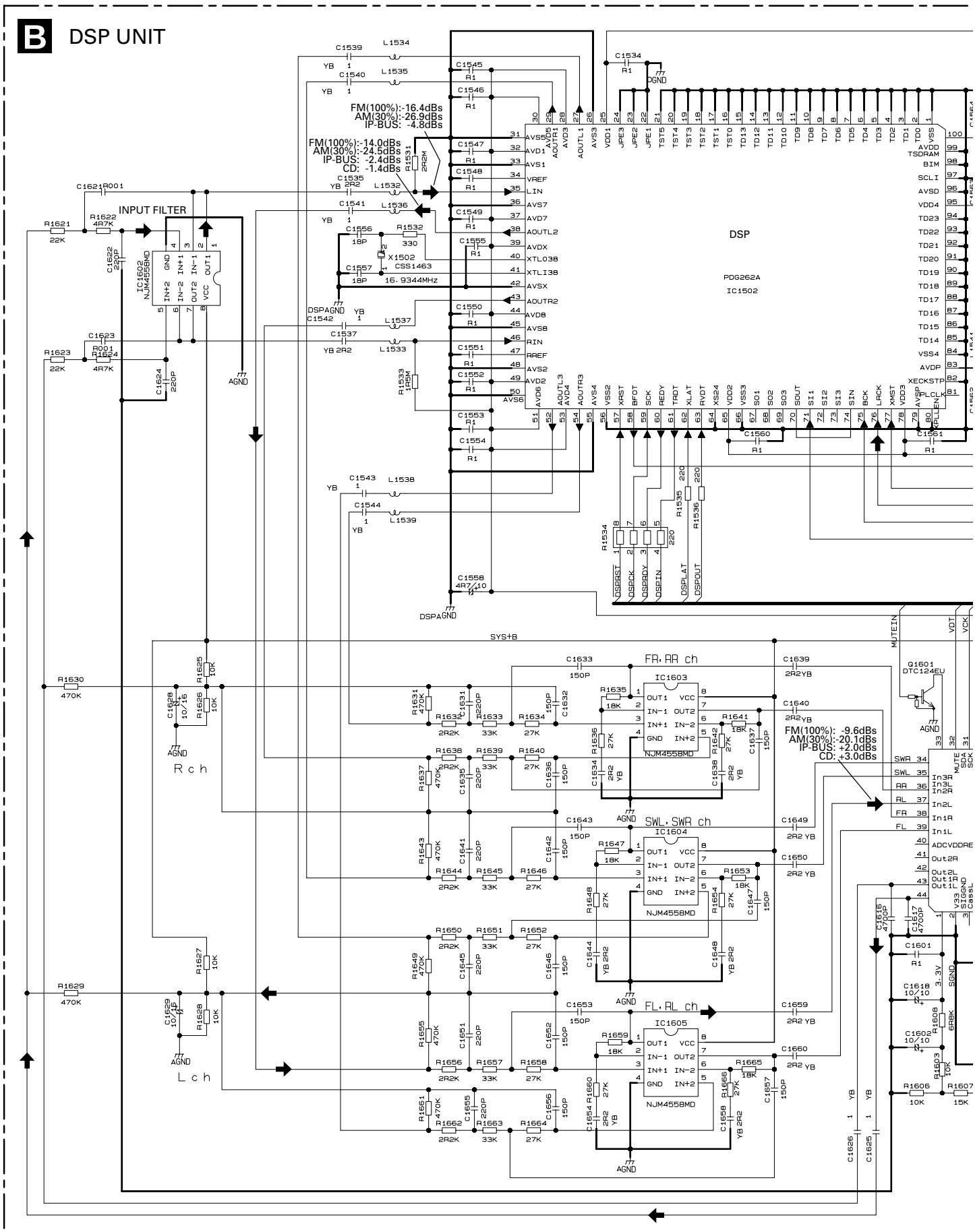
A-a A-b

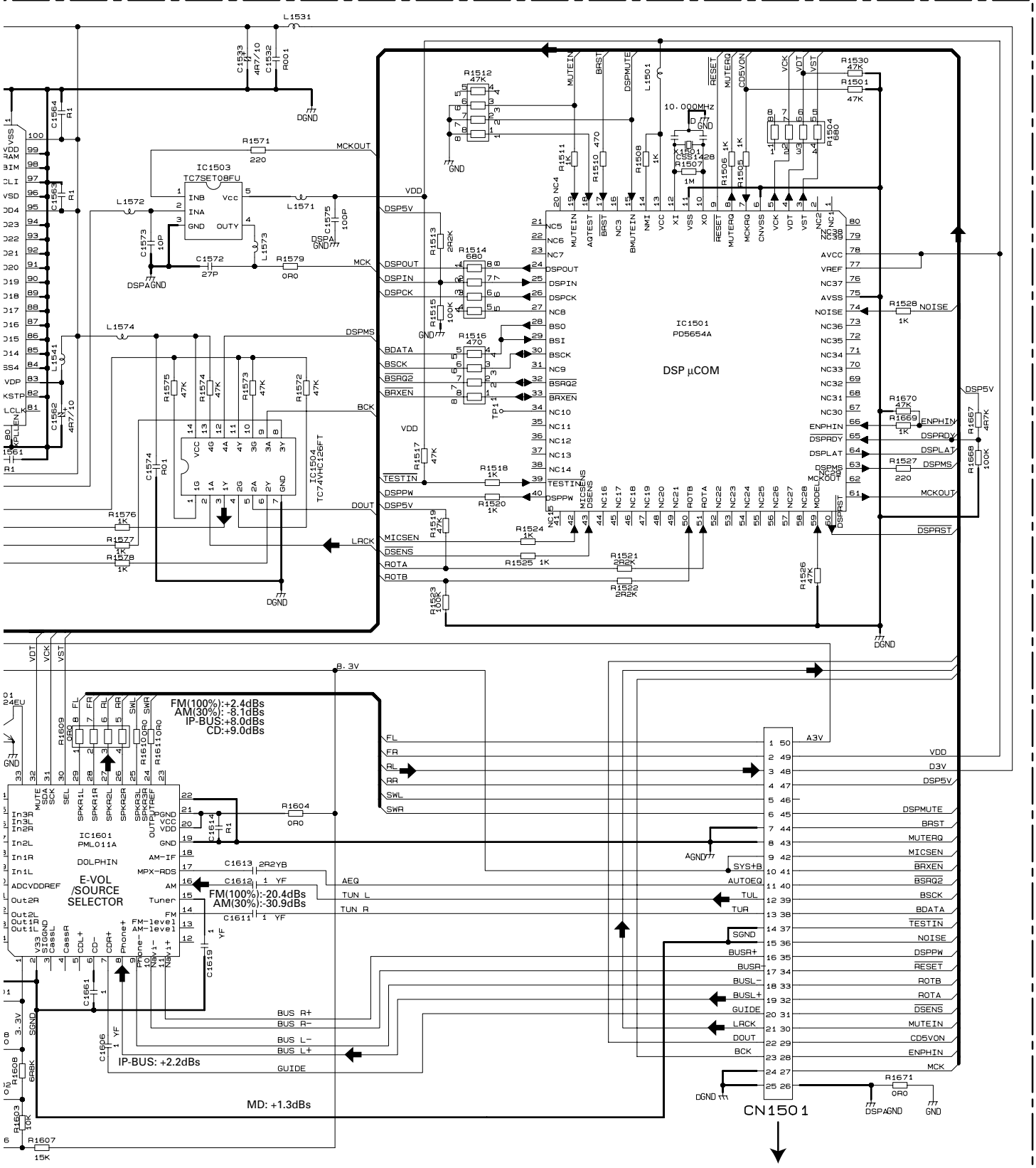
A TUNER AMP UNIT



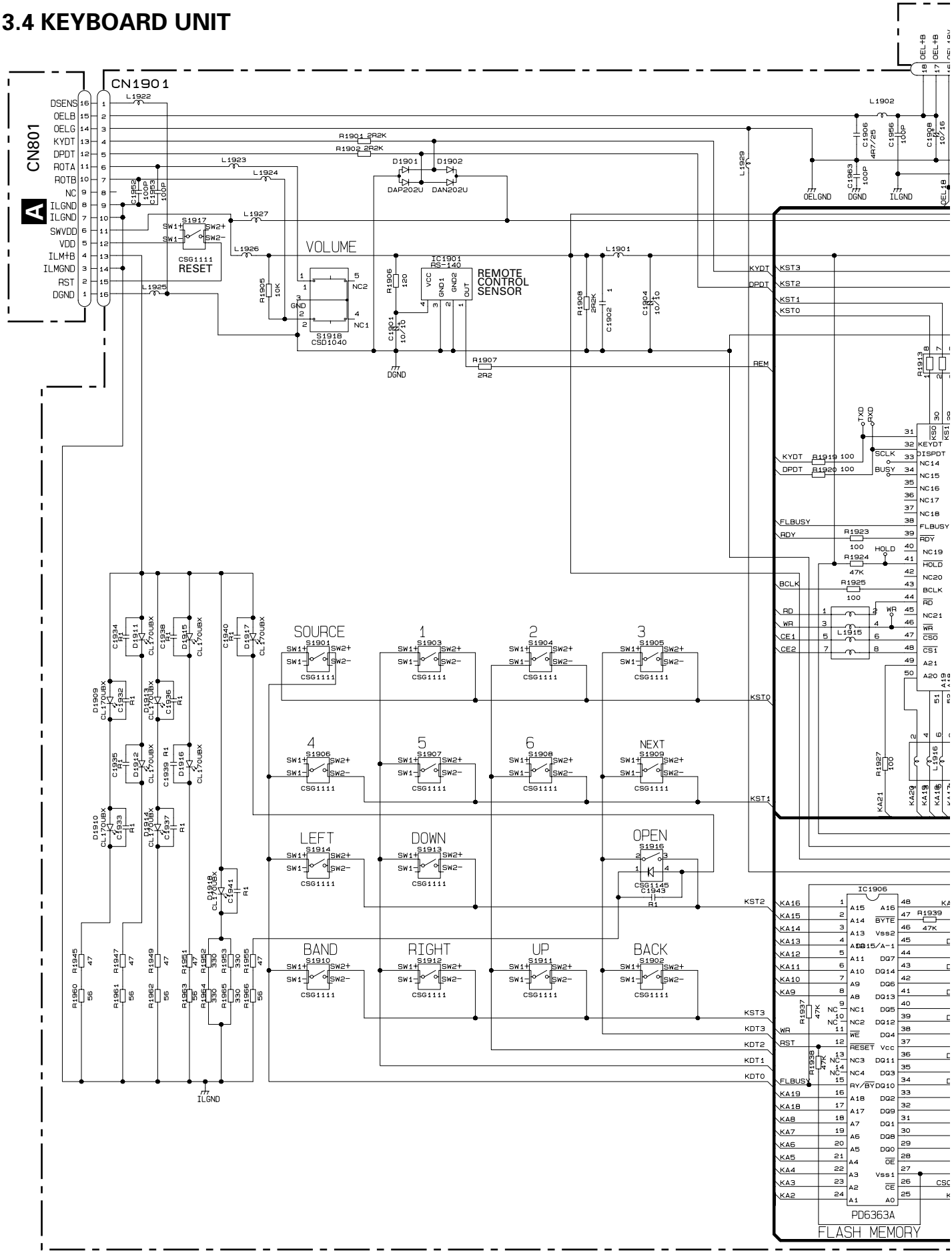

CN901
5V REG.
VDD REG.
SENSE
SYS+B REG.
MUTE
ASL
OEL+B REG.
ILM+B REG.
M CONTROLLER
P930, P9300
P9350

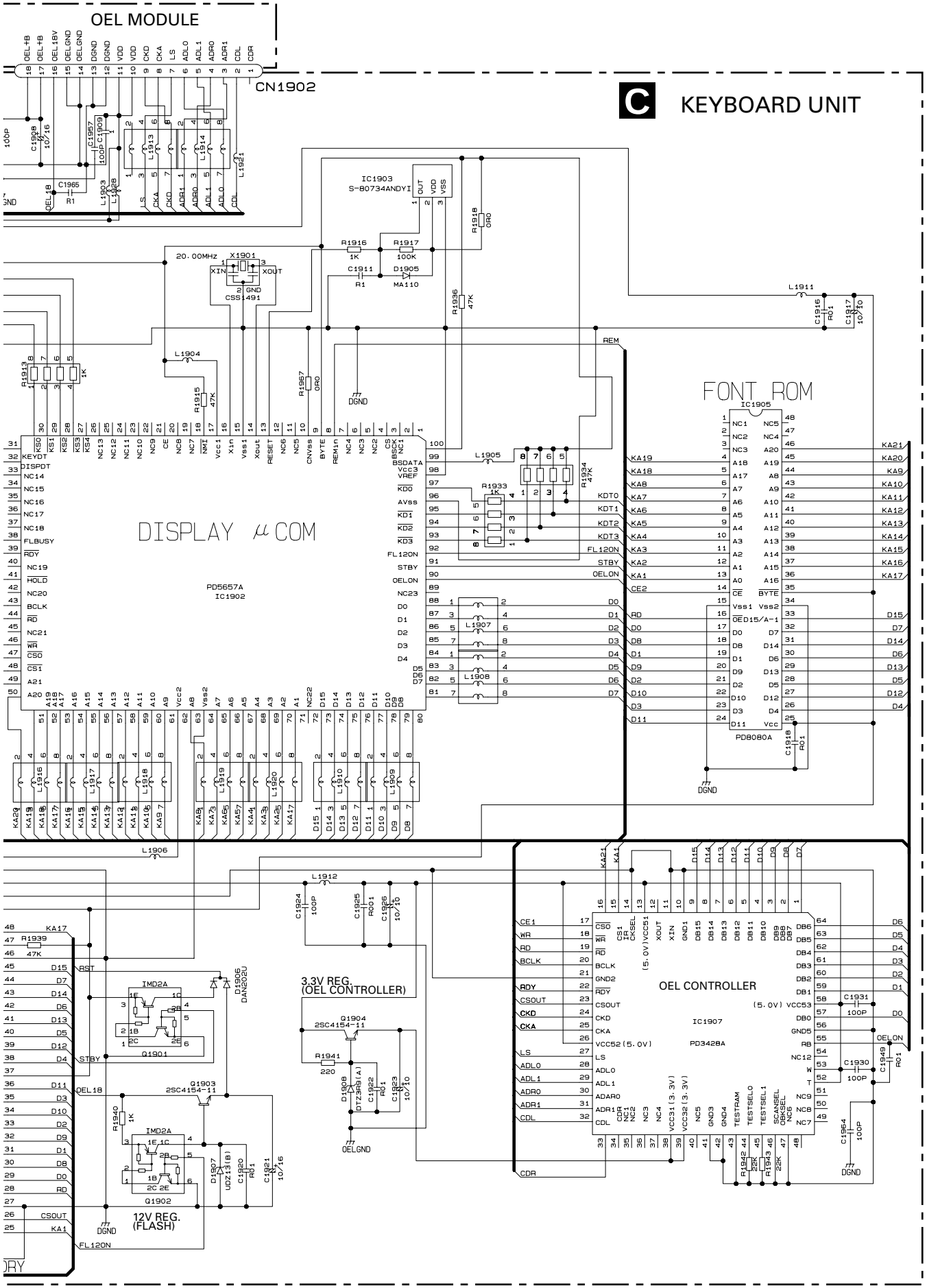
3.3 DSP UNIT


B DSP UNIT
INPUT FILTER
DSP
PDG262A
IC1502
FM(100%):-16.4dBs
AM(30%):-26.9dBs
IP-BUS: -4.8dBs
FM(100%):-14.0dBs
AM(30%):-24.5dBs
IP-BUS: -2.4dBs
CD: -1.4dBs
FM(100%): -9.6dBs
AM(30%):-20.1dBs
IP-BUS: +2.0dBs
CD: +3.0dBs
FR, RR ch
SWL, SWR ch
FL, RL ch
Rch
Lch
IC1603
IC1604
IC1605
NJM4558MD
Q1601
DTC124EU
SYS+B
AGND
DSPAGND
DGND


IC1501
PD5654A
DSP µCOM
IC1503
TC7SET08FU
IC1504
TC74VHC126FT
IC1601
PML011A
DOLPHIN
E-VOL
/SOURCE
SELECTOR
FM(100%):+2.4dBs
AM(30%): -8.1dBs
IP-BUS:+8.0dBs
CD:+9.0dBs
FM(100%):-20.4dBs
AM(30%):-30.9dBs
IP-BUS: +2.2dBs
MD: +1.3dBs
CN1501
CN251
A
10.000MHz
8.3V
A3V
VDD
D3V
DSP5V
DGND
AGND
DSPAGND
GND

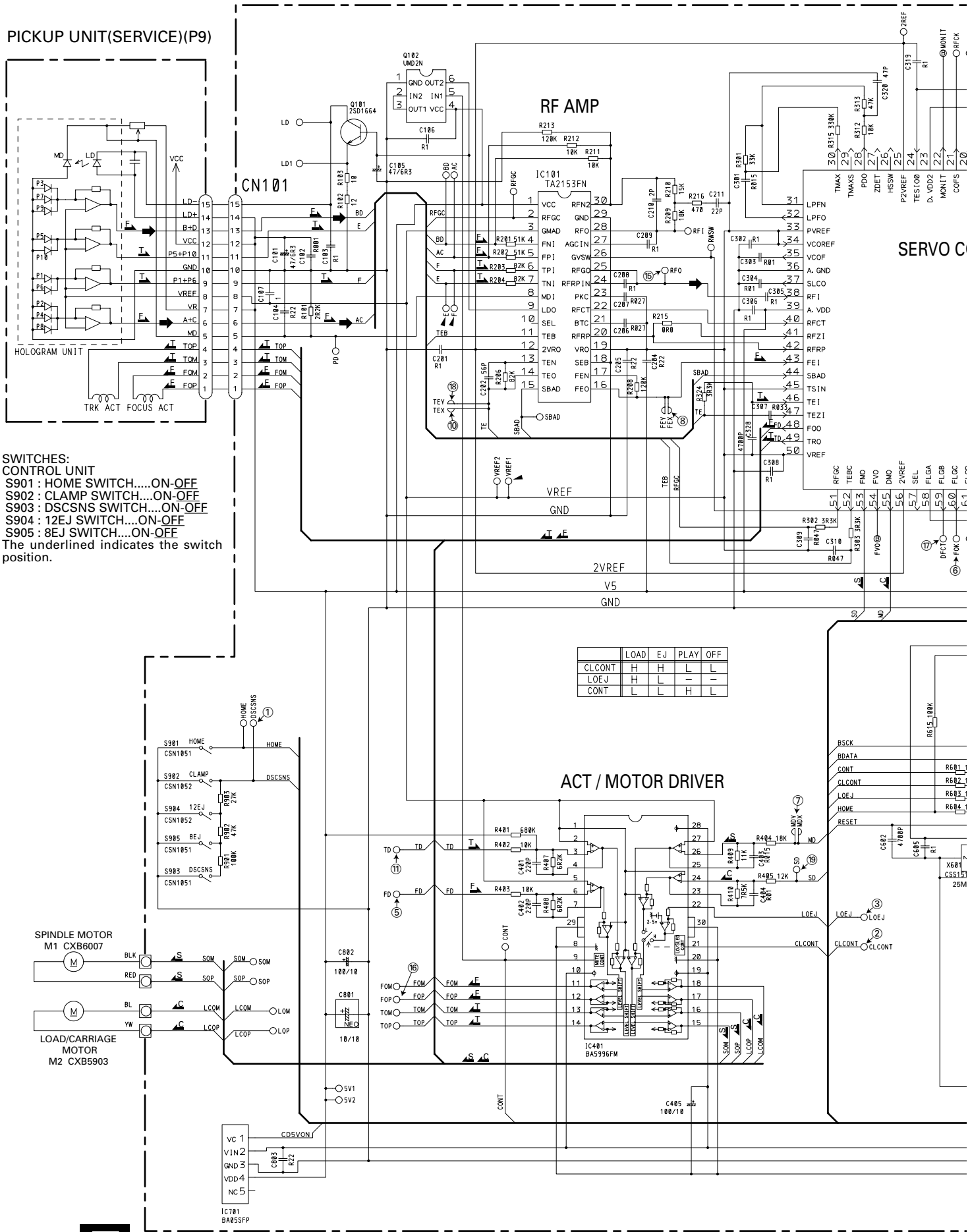
3.4 KEYBOARD UNIT



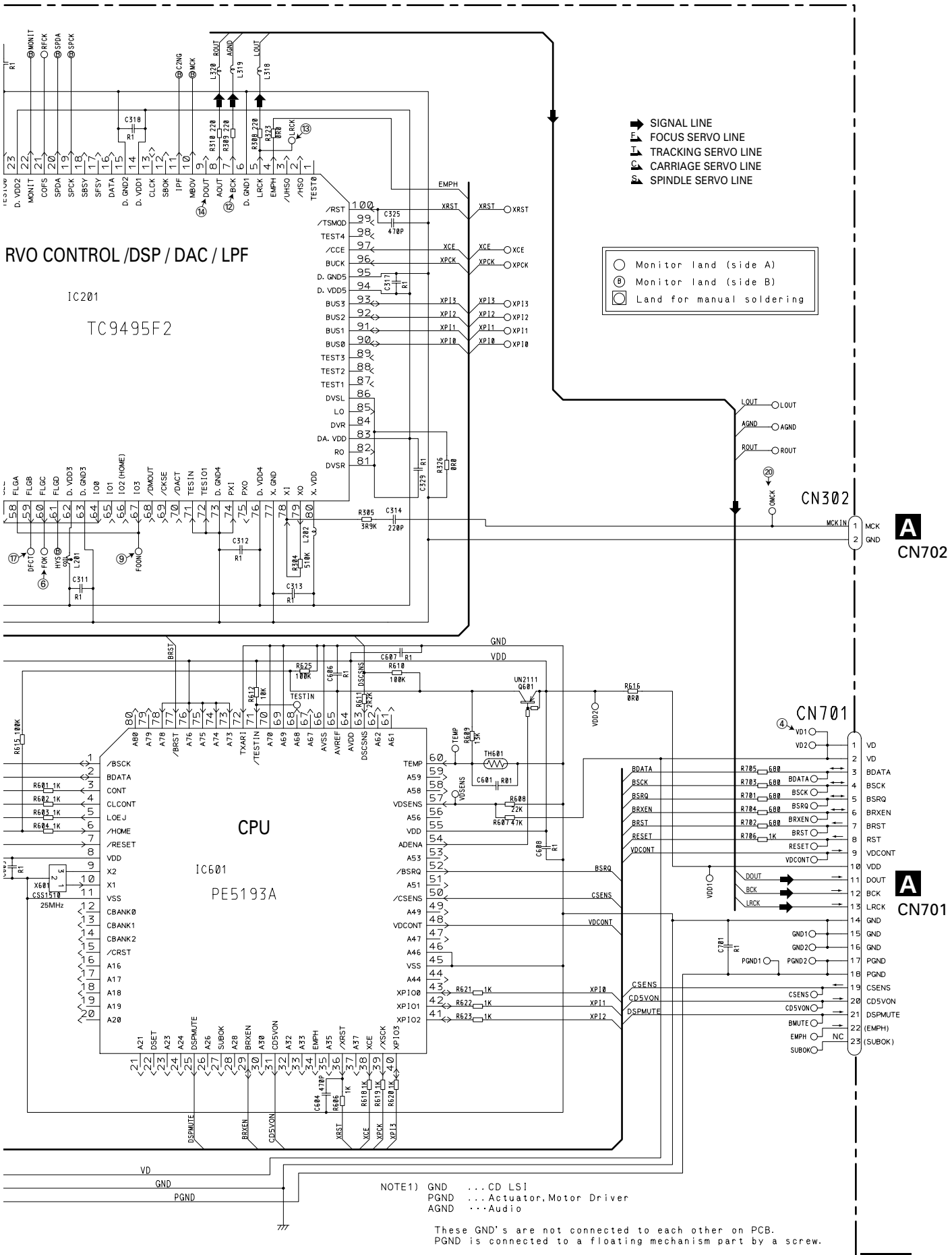

OEL MODULE
CN1902
C KEYBOARD UNIT
IC1903
S-80734ANDYI
X1901
20.00MHz
CSS1491
L1904
L1905
L1906
L1907
L1908
L1911
L1912
DISPLAY μCOM
PD5657A
IC1902
FONT ROM
IC1905
PD8080A
OEL CONTROLLER
IC1907
PD3428A
3.3V REG.
(OEL CONTROLLER)
12V REG.
(FLASH)
IMD2A
Q1901
Q1902
Q1903
Q1904
2SC4154-11
DAN202U
DTZ3.9B
UDZ13(B)
REM
DGND
OELGND
FL120N
CDR

F CONTROL UNIT

3.5 CD MECHANISM MODULE



	LOAD	EJ	PLAY	OFF
CLCONT	H	H	L	L
LOEJ	H	L	–	–
CONT	L	L	H	L

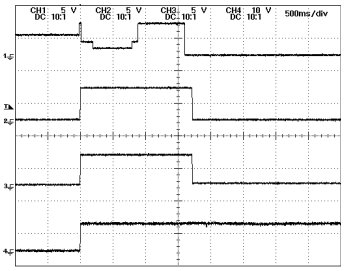

SIGNAL LINE
FOCUS SERVO LINE
TRACKING SERVO LINE
CARRIAGE SERVO LINE
SPINDLE SERVO LINE
Monitor land (side A)
Monitor land (side B)
Land for manual soldering
RVO CONTROL /DSP / DAC / LPF
IC201
TC9495F2
CPU
IC601
PE5193A
CN302
CN702
CN701
CN701
NOTE1) GND ...CD LSI
PGND ...Actuator, Motor Driver
AGND ...Audio
These GND's are not connected to each other on PCB.
PGND is connected to a floating mechanism part by a screw.

Note:1. The encircled numbers denote measuring pointes in the circuit diagram.
2. Reference voltage
VREF:2.1V

● Waveforms

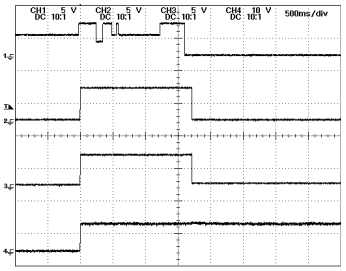
① CH1:DSCSNS 5V/div.
② CH2:CLCONT 5V/div.
③ CH3:LOEJ 5V/div. 500ms/div.
④ CH4:VD 10V/div.
When loading (12 cm CD)

Ref. : GND
Mode : Normal



① CH1:DSCSNS 5V/div.
② CH2:CLCONT 5V/div.
③ CH3:LOEJ 5V/div. 500ms/div.
④ CH4:VD 10V/div.
When loading (8 cm CD)

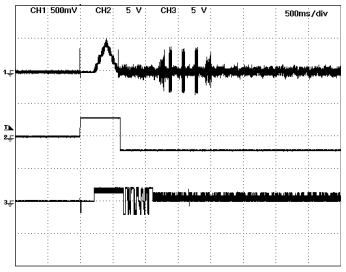
Ref. : GND
Mode : Normal



⑤ CH1:FD 500mV/div.
⑥ CH2:FOK 5V/div. 500ms/div.
⑦ CH3:MD 5V/div.

When setting up "Source On"

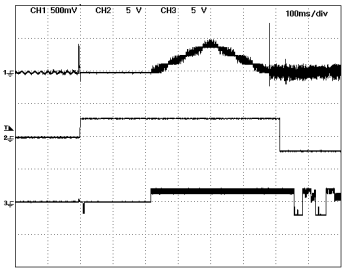
Ref. : VREF
Mode : Normal



⑤ CH1:FD 500mV/div.
⑥ CH2:FOK 5V/div. 100ms/div.
⑦ CH3:MD 5V/div.

Magnified drawing for "time"

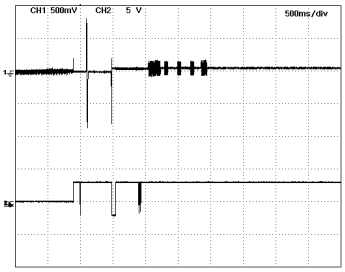
Ref. : VREF
Mode : Normal



⑧ CH1:FE 500mV/div. 500ms/div.
⑨ CH2:FOON 5V/div.

When setting up "Source On"

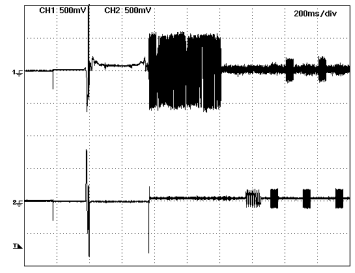
Ref. : VREF
Mode : Normal



⑩ CH1:TE 500mV/div. 200ms/div.
⑧ CH2:FE 500mV/div.

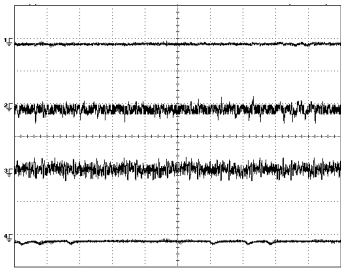
When setting up "Source On"

Ref. : VREF
Mode : Normal



⑧ CH1:FE 500mV/div.
⑤ CH2:FD 500mV/div. 1ms/div.
⑩ CH3:TE 500mV/div.
⑪ CH4:TD 500mV/div.
During "Play"

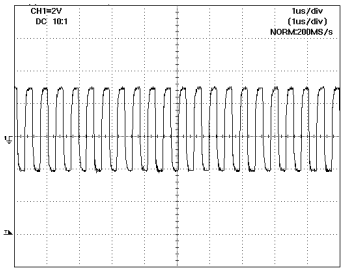
Ref. : VREF
Mode : Normal



⑫ CH1:BCK 2V/div. 1µs/div.

During "Play"

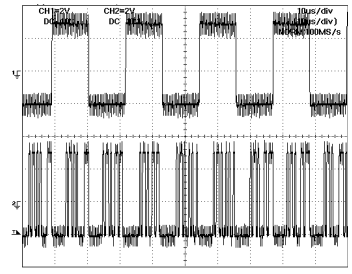
Ref. : VREF
Mode : Normal



⑬ CH1:LRCK 2V/div.
⑭ CH2:DOUT 2V/div. 10µs/div.

During "Play"

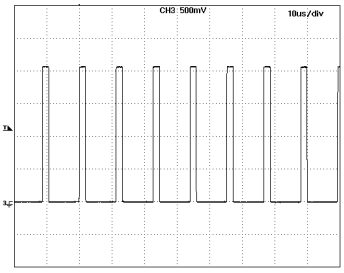
Ref. : VREF
Mode : Normal



⑦ CH1:MD 500mV/div. 10µs/div.

During "Play"

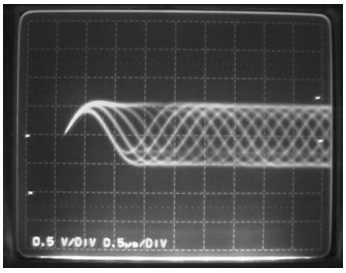
Ref. : VREF
Mode : Normal



⑮ CH1:RFO 500mV/div. 0.5µs/div.

During "Play"

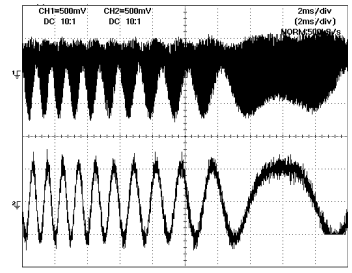
Ref. : VREF
Mode : Normal



⑮ CH1:RFO 500mV/div.
⑩ CH2:TE 500mV/div. 2ms/div.

During "Tracking Open"

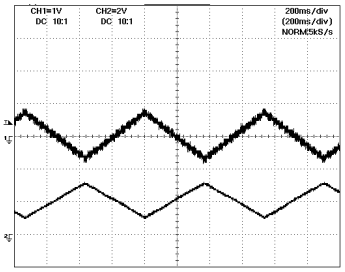
Ref. : VREF
Mode : Test



⑤ CH1:FD 1V/div.
⑯ CH2:FOP 2V/div. 200ms/div.

With no disk inserted
During "Focus Close"

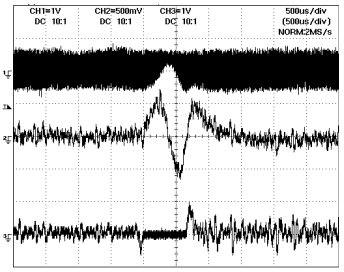
Ref. : VREF
Mode : Test



⑮ CH1:RFO 1V/div.
⑩ CH2:TE 500mV/div. 500µs/div.
⑪ CH3:TD 1V/div.

1 Track Jump

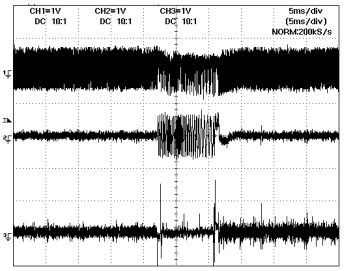
Ref. : VREF
Mode : Test



⑮ CH1:RFO 1V/div.
⑩ CH2:TE 1V/div. 5ms/div.
⑪ CH3:TD 1V/div.

32 Track Jump

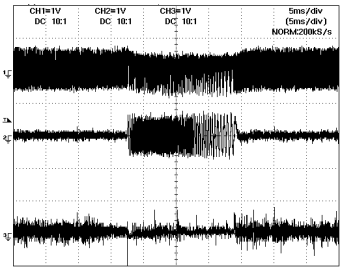
Ref. : VREF
Mode : Test



⑮ CH1:RFO 1V/div.
⑩ CH2:TE 1V/div. 5ms/div.
⑪ CH3:TD 1V/div.

100 Track Jump

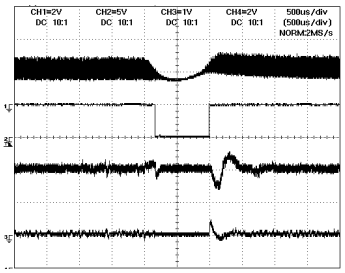
Ref. : VREF
Mode : Test



⑮ CH1:RFO 2V/div.
⑰ CH2:DFCT 5V/div. 500µs/div.
⑤ CH3:FD 1V/div.
⑪ CH4:TD 2V/div.

When reproducing black dots (800µm)

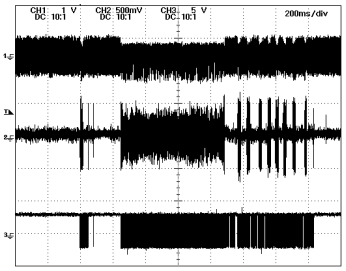
Ref. : VREF
Mode : Normal



⑮ CH1:RFO 1V/div.
⑩ CH2:TE 500mV/div. 200ms/div.
⑰ CH3:DFCT 5V/div.

During inside/outside search

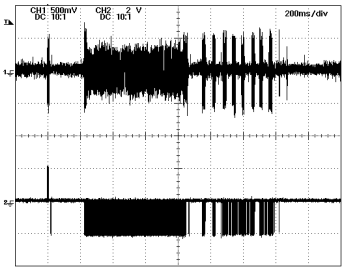
Ref. : VREF
Mode : Normal



⑱ CH1:TEY 500mV/div. 200ms/div.
⑲ CH2:SD 2V/div.

During inside/outside search

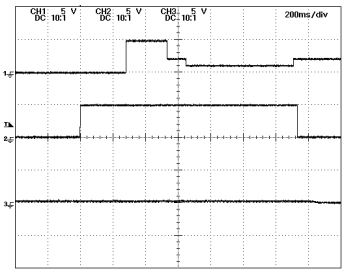
Ref. : VREF
Mode : Normal



① CH1:DSCSNS 5V/div.
② CH2:CLCONT 5V/div. 200ms/div.
③ CH3:LOEJ 5V/div.

When "Eject" (12 cm CD)

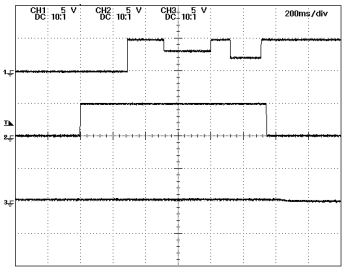
Ref. : GND
Mode : Normal



① CH1:DSCSNS 5V/div.
② CH2:CLCONT 5V/div. 200ms/div.
③ CH3:LOEJ 5V/div.

When "Eject" (8cm CD)

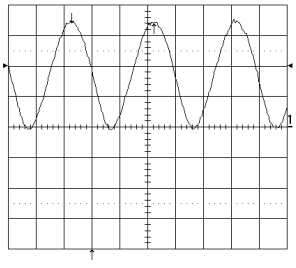
Ref. : GND
Mode : Normal



⑳ CH1:MCK 1V/div. 20ns/div.

Note : Necessary to use RF probe.

Ref. : GND
Mode : Normal

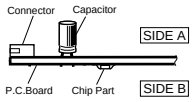


4. PCB CONNECTION DIAGRAM

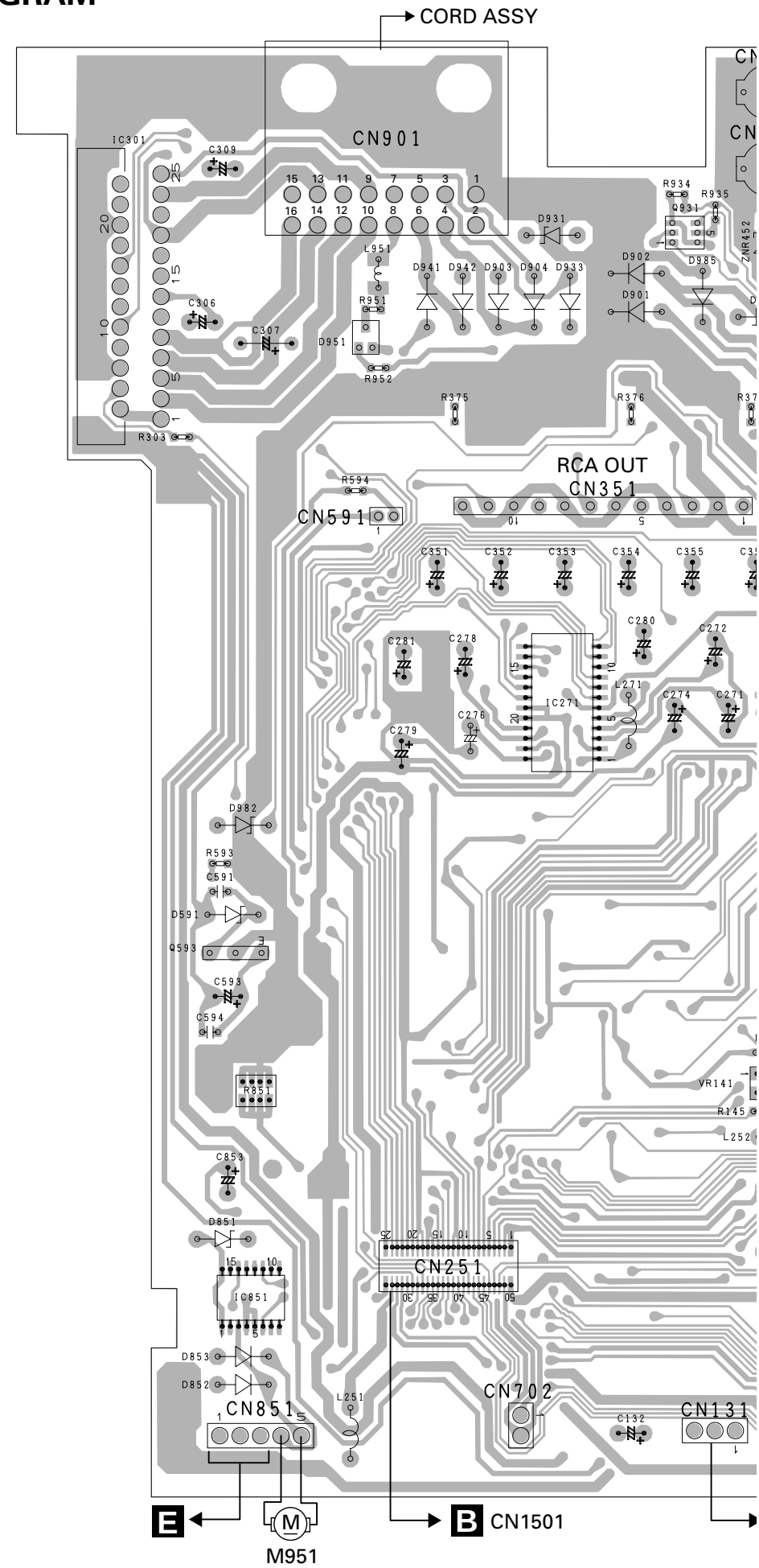
4.1 TUNER AMP UNIT

NOTE FOR PCB DIAGRAMS

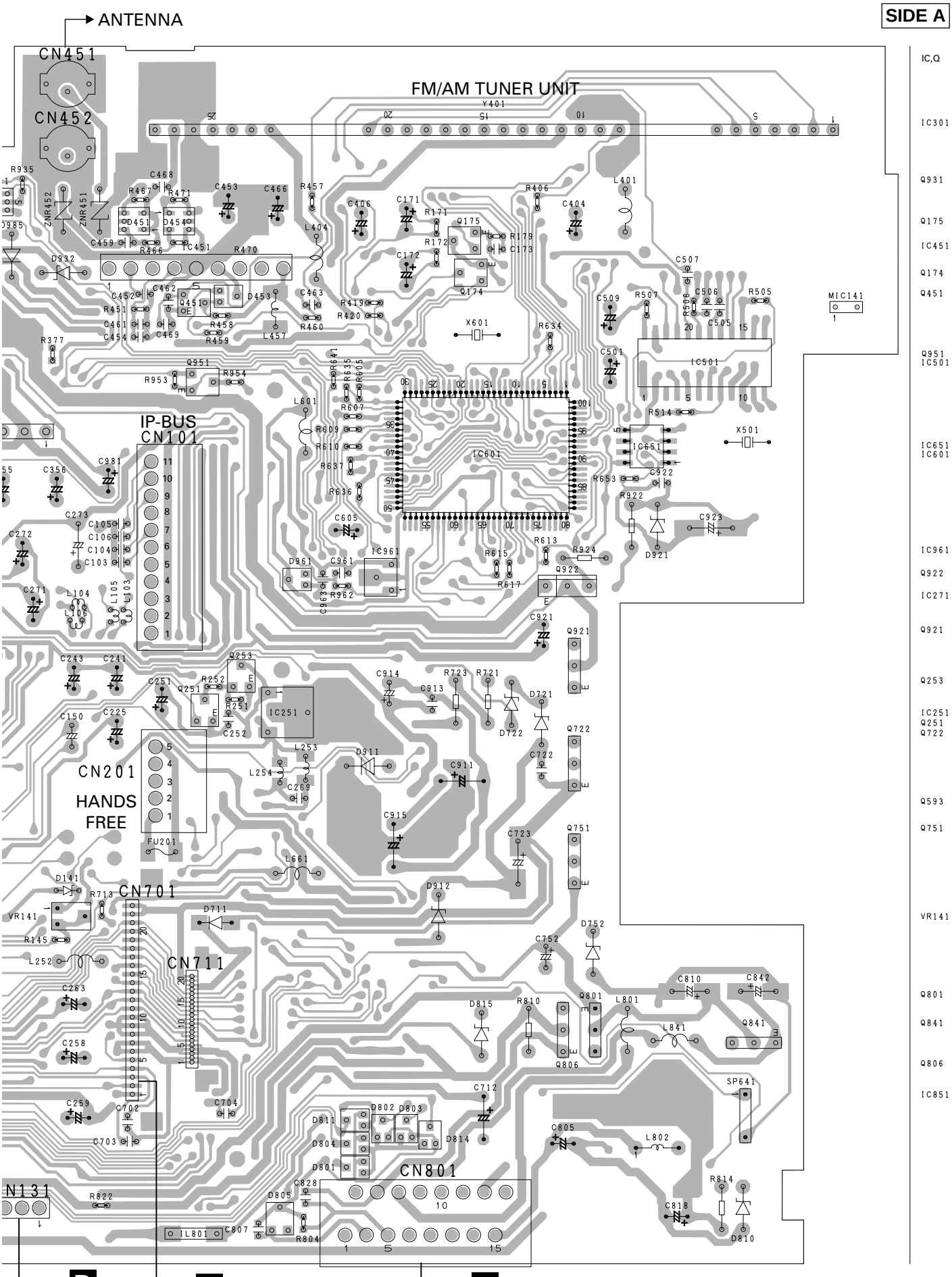
1. The parts mounted on this PCB include all necessary parts for several destination.
   For further information for respective destinations, be sure to check with the schematic diagram.
2. Viewpoint of PCB diagrams



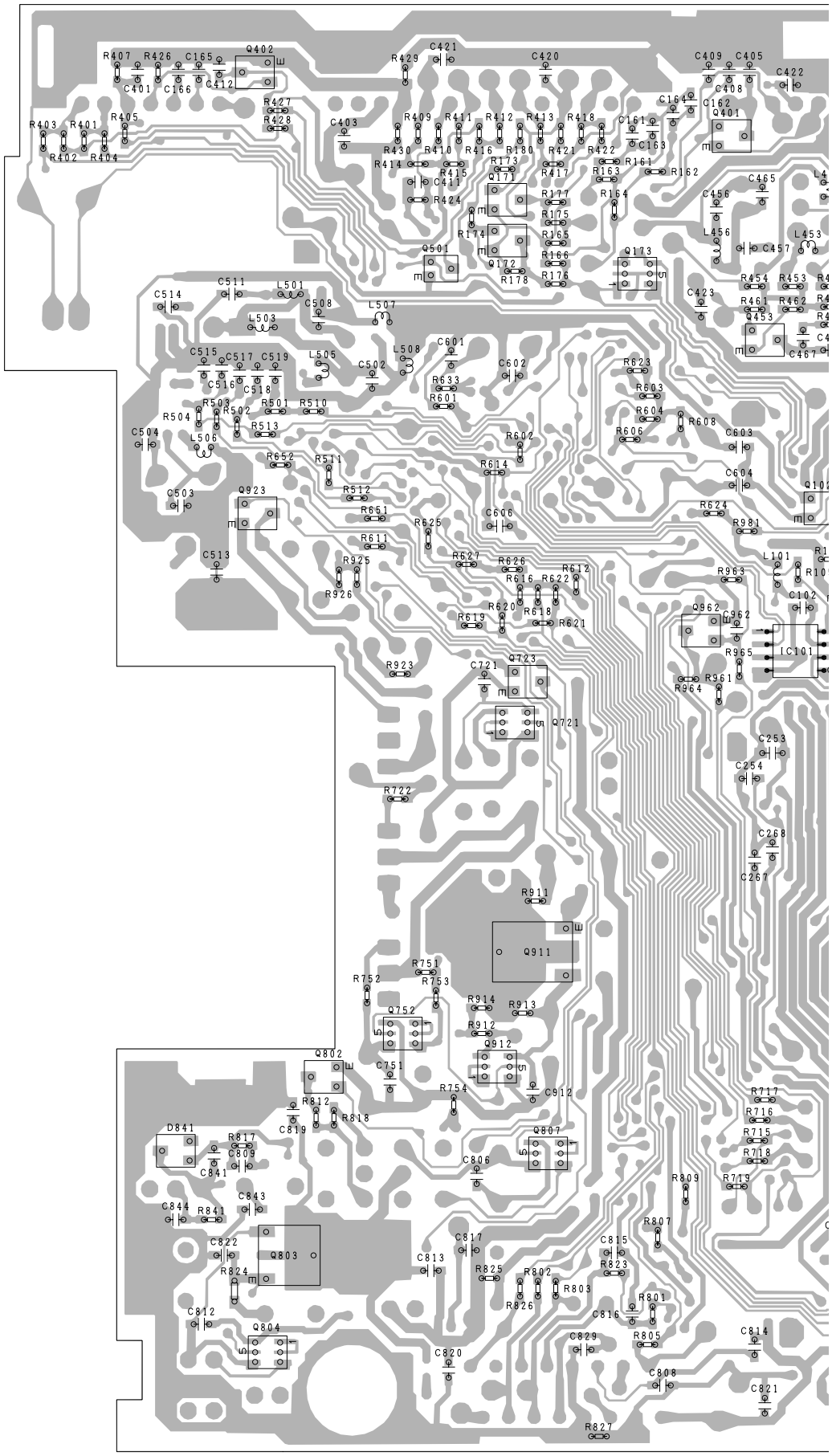
A TUNER AMP UNIT



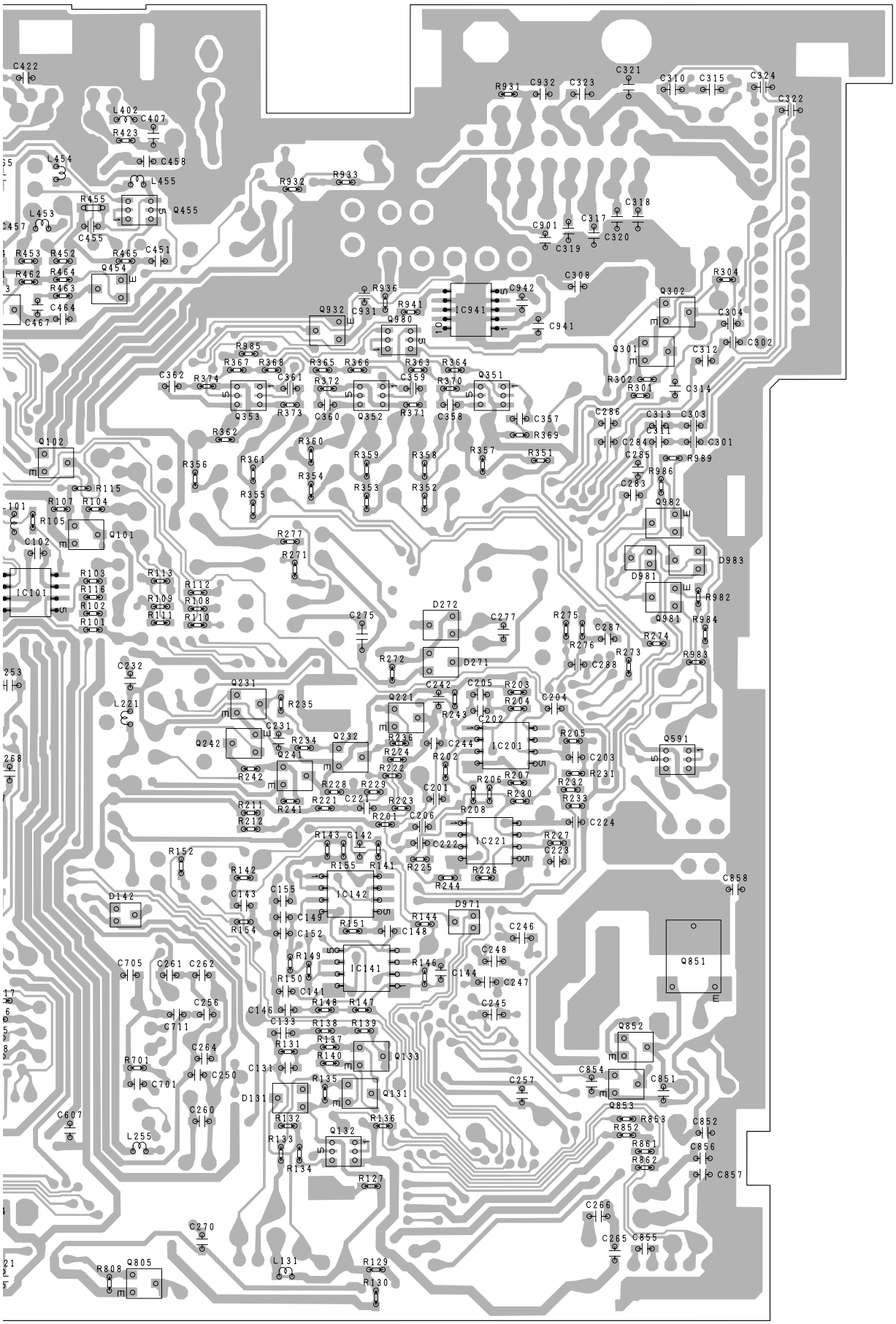
SIDE A


ANTENNA
CN451
CN452
FM/AM TUNER UNIT
Y401
IC301
Q931
L401
Q175
IC451
Q174
Q451
MIC141
C507
C506
R505
C509
R507
X601
R634
C501
IC501
Q951
IC501
IP-BUS
CN101
R514
X501
IC651
IC601
C922
R653
R922
D921
C923
C605
IC961
R615
R613
R924
Q922
D961
C961
R962
R617
IC271
C921
Q921
Q921
C243
C241
Q253
C914
R723
R721
D721
C913
D722
Q722
C722
Q253
IC251
Q251
Q722
C150
C225
C251
R252
R251
C252
IC251
L253
L254
C269
D911
C911
CN201
HANDS
FREE
FU201
C915
Q751
C723
Q751
L661
D912
D141
R713
CN701
VR141
D711
D752
VR141
R145
L252
C752
CN711
C810
C842
Q801
C263
D815
R810
Q801
L801
L841
Q841
Q841
C258
Q806
Q806
SP641
C259
C702
C704
C712
IC851
C703
D802
D803
D811
D814
D804
C805
L802
D801
CN801
R814
N131
R822
C828
D805
C818
D810
C807
R804
IL801
D
FRONT
F
CN701
C
CN1901

A TUNER AMP UNIT



SIDE B


C422
L402
C407
R423
C458
L454
L455
R455
Q455
L453
C455
R453
R452
R465
C451
R462
R464
Q454
R463
C464
C467
R932
R933
R931
C932
C323
C321
C310
C315
C324
C322
C901
C317
C318
C320
C319
R936
C931
R941
Q980
IC941
C942
C941
C308
Q932
Q302
R304
C304
C302
Q301
C312
R985
R367
R368
R365
R366
R363
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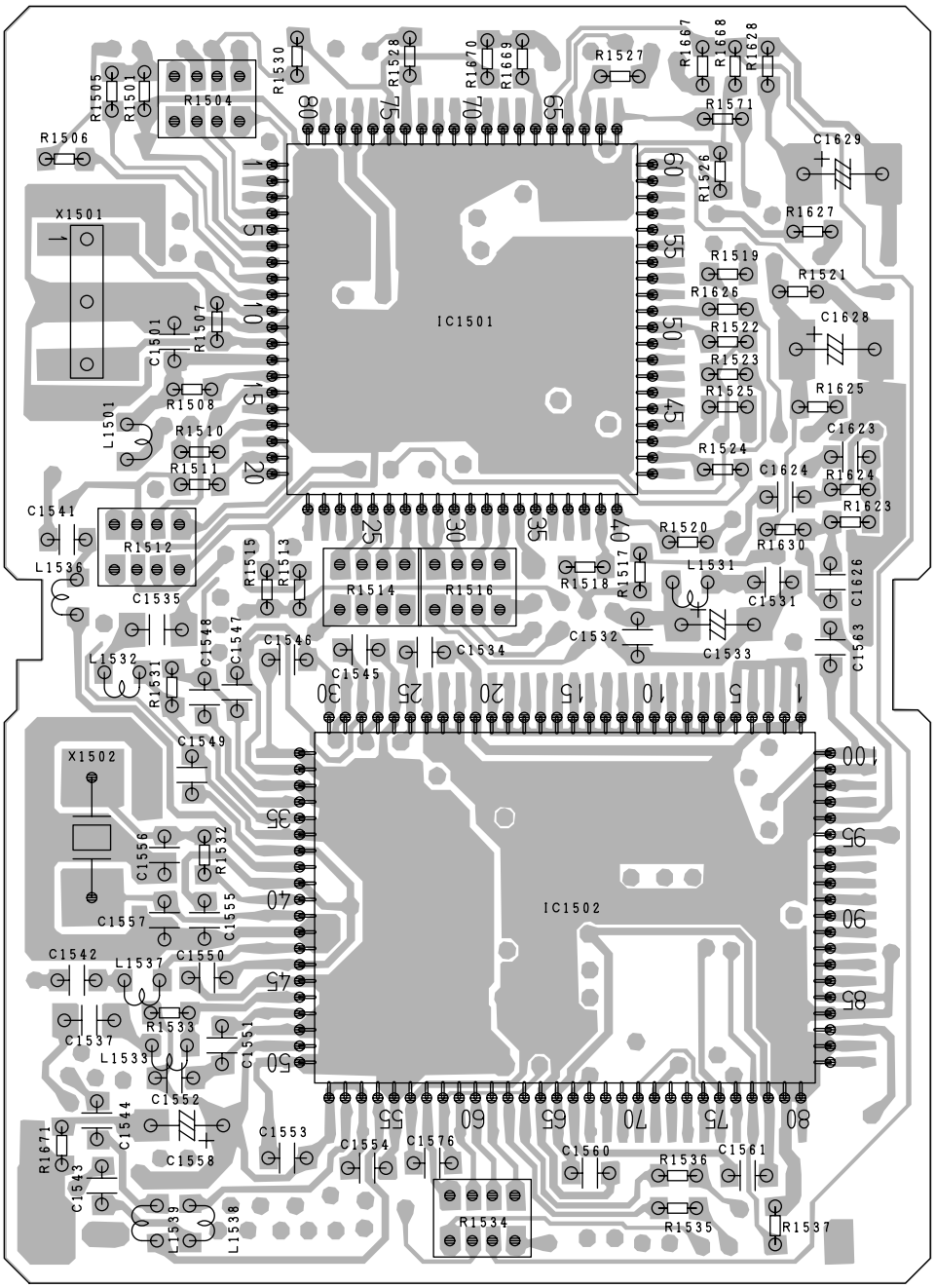
Q351
Q353
R373
C360
Q352
R371
C358
R302
C314
C357
C286
C313
C303
C311
C284
C301
R369
R362
R360
C285
R989
Q102
R361
R359
R358
R357
R351
R356
R354
R353
R352
R986
C283
R355
Q982
R115
R107
R104
R105
Q101
C102
R277
R271
D983
D981
R103
R116
R102
R101
IC101
R113
R112
R109
R108
R111
R110
R982
Q981
R984
D272
C275
C277
R275
C287
R276
R274
R273
C288
R983
R272
D271
C232
C242
C205
R203
R204
C204
Q231
R235
L221
R243
Q221
C202
C231
R205
Q591
Q242
R234
Q232
R236
C244
IC201
C203
R224
R202
R231
R242
Q241
R222
R207
R206
R232
R228
R229
C201
R230
R233
R211
R241
R221
C221
R223
C206
R201
C224
R212
R208
R143
C142
IC221
R227
R152
C222
C223
R155
R141
R225
R142
R226
C858
R244
C143
C155
IC142
D142
D971
R154
C149
R151
C148
C246
C152
R144
C248
Q851
C705
C261
C262
R149
IC141
R146
C144
C247
R150
C141
C256
C245
C711
C146
R148
R147
C133
R138
R139
Q852
R137
R131
C264
R140
Q133
R701
C250
C854
C851
C131
R135
C257
C701
Q131
D131
Q853
C607
C260
R132
R136
R863
R852
C852
L255
Q132
R133
R861
C856
R862
R134
C857
R127
C266
C270
C265
C855
L131
R129
R808
Q805
R130

4.2 DSP UNIT

B DSP UNIT

SIDE A



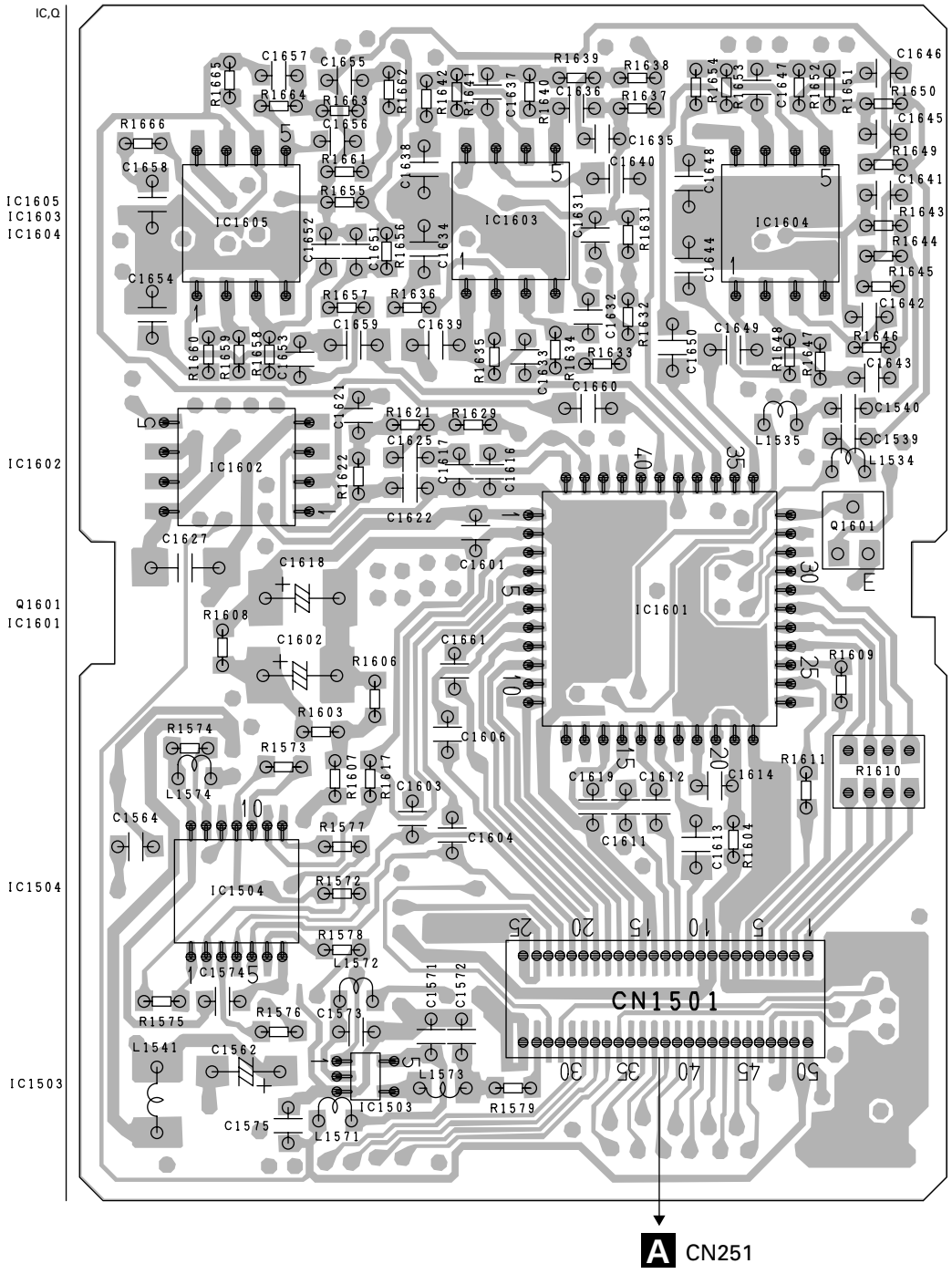
IC,Q

IC1501

IC1502

B DSP UNIT

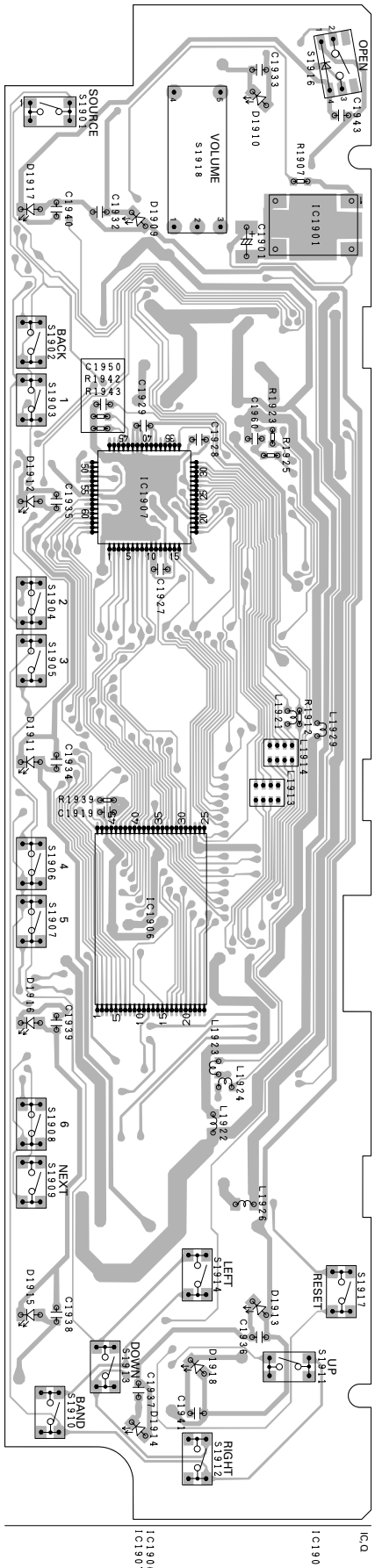
SIDE B



4.3 KEYBOARD UNIT

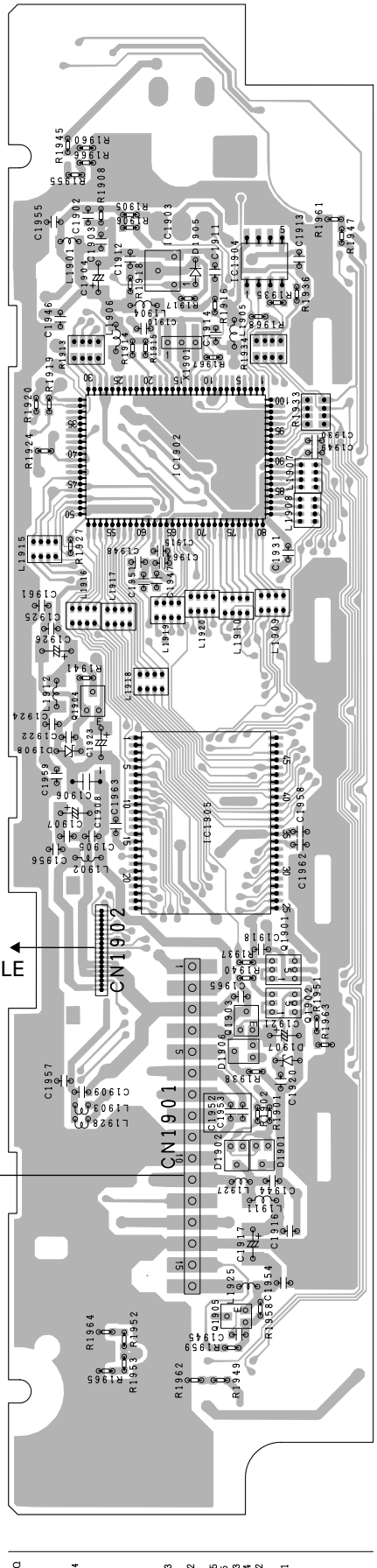
C KEYBOARD UNIT

SIDE A



C KEYBOARD UNIT

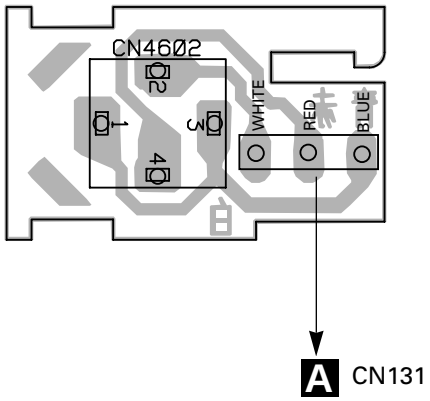
SIDE B



C

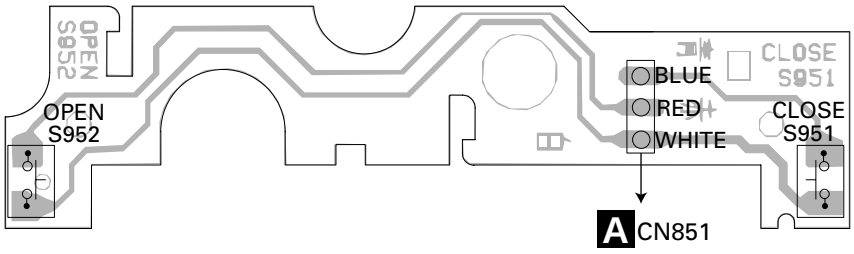
4.4 EQ PCB

D EQ PCB

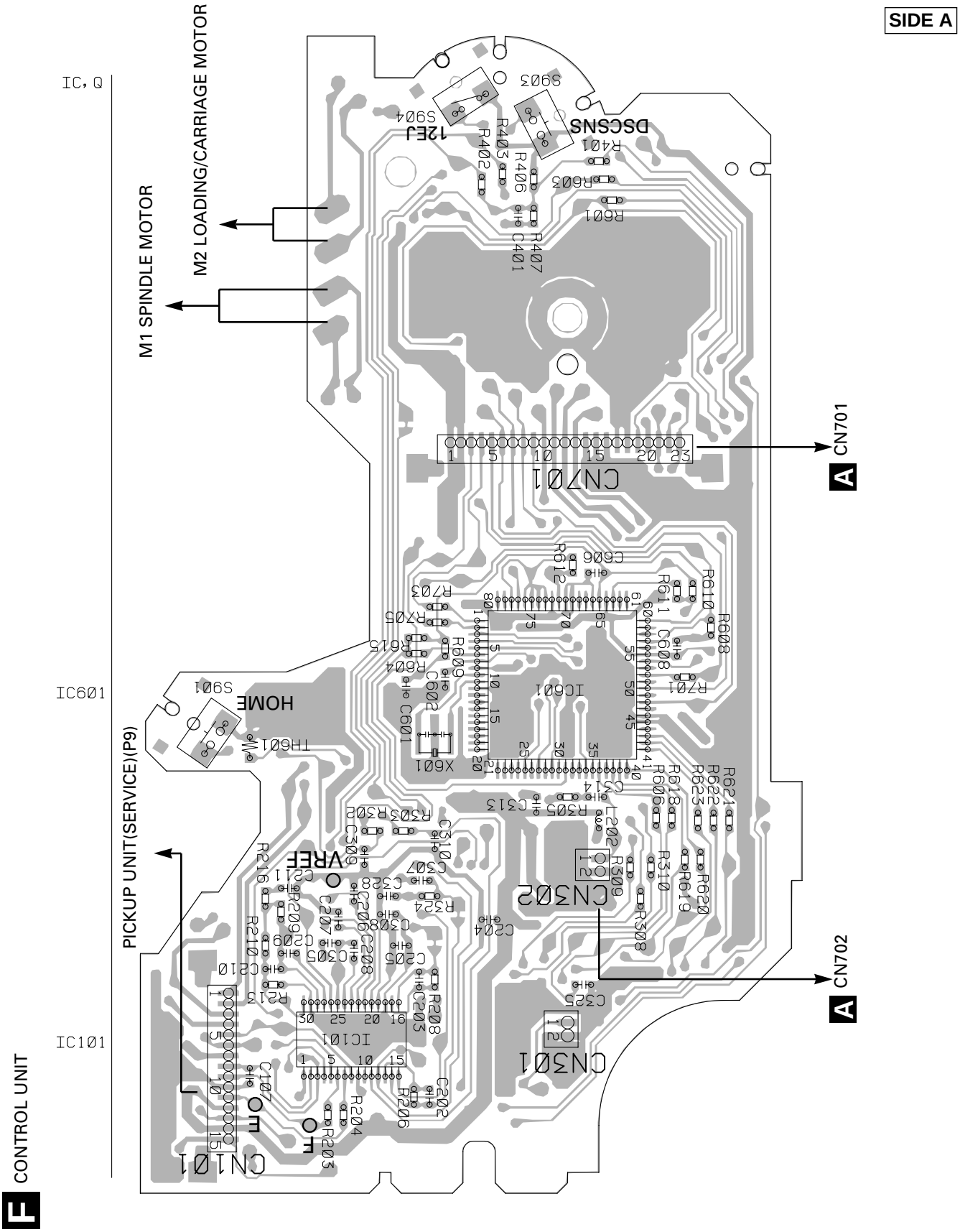


4.5 SWITCH PCB

E SWITCH PCB

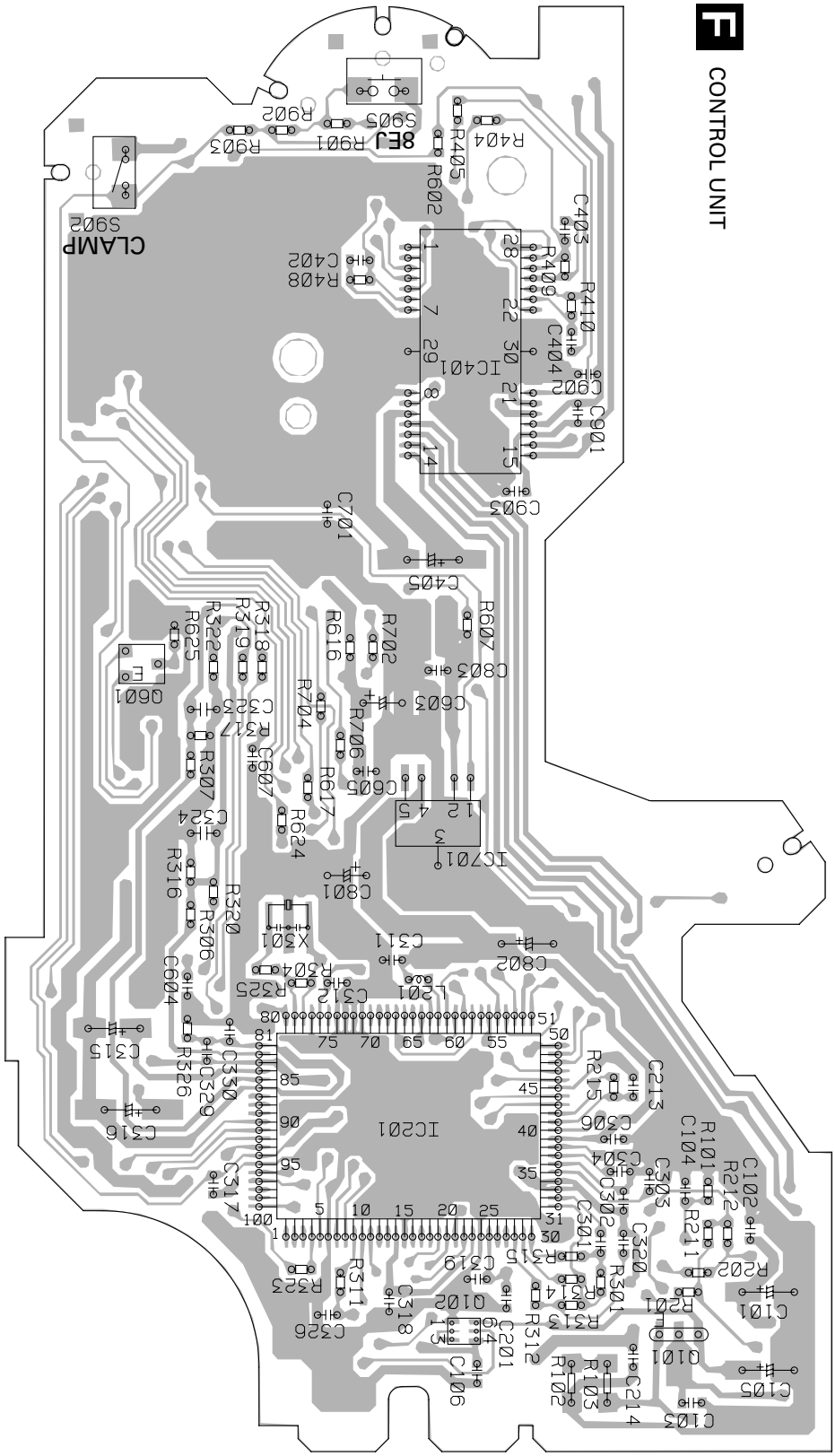


4.6 CD MECHANISM MODULE



SIDE B

CONTROL UNIT



5. ELECTRICAL PARTS LIST

NOTES:

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/○S○○○J,RS1/○○S○○○J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

A Unit Number : CWM7699(DEH-P930/UC)
Unit Number : CWM7700(DEH-P9300/UC)
Unit Number : CWM7701(DEH-P9350/ES)
Unit Name : Tuner Amp Unit

MISCELLANEOUS

=====Circuit Symbol and No.		===Part Name	Part No.
IC	101	IC	HA12187FP
IC	141	IC	NJM2068MD
IC	142	IC	NJM2068MD
IC	201	IC	NJM2068MD
IC	221	IC	NJM2068MD
IC	251	IC	BA033FP
IC	271	IC	PA2028A
IC	301	IC	PAL006A
IC	601	IC	PD5650A
IC	851	IC	BA6288FS
IC	961	IC	S-80735ANDZI
Q	101	Transistor	2SA1235A-12
Q	102	Transistor	RT1N241C-12
Q	131	Transistor	2SC3052-12
Q	132	Transistor	IMD2A
Q	133	Transistor	2SC3052-12
Q	221	Transistor	2SC3326
Q	231	Transistor	2SC3052-12
Q	232	Transistor	2SA1235A-12
Q	241	Transistor	2SA1235A-12
Q	242	Transistor	RT1N141C-12
Q	251	Transistor	RT1N141C-12
Q	253	Transistor	2SB1198K
Q	301	Transistor	RT1N241C-12
Q	351	Transistor(P930/UC)	HN1C03F
		Transistor(P9300/UC, P9350/ES)	IMH3A
Q	352	Transistor(P930/UC)	HN1C03F
		Transistor(P9300/UC, P9350/ES)	IMH3A
Q	353	Transistor(P930/UC)	HN1C03F
		Transistor(P9300/UC, P9350/ES)	IMH3A
Q	401	Transistor	2SC3052-12
Q	721	Transistor	IMD2A
Q	722	Transistor	2SD2396
Q	751	Transistor	2SD2396
Q	752	Transistor	IMD2A
Q	801	Transistor	2SB808
Q	802	Transistor	RT1N141C-12
Q	803	Transistor	2SD2318F5
Q	804	Transistor	IMD2A
Q	805	Transistor	2SC3052-12
Q	806	Transistor	2SD1859
Q	807	Transistor	IMD2A
Q	851	Transistor	2SD1760F5
Q	852	Transistor	RT1P141C-12
Q	853	Transistor	RT1N241C-12
Q	911	Transistor	2SD1760F5
Q	912	Transistor	IMD2A
Q	921	Transistor	2SD2396
Q	922	Transistor	2SB1238
Q	923	Transistor	RT1N141C-12
Q	931	Transistor	IMX1
Q	932	Transistor	RT1N141C-12
Q	951	Transistor	2SA1235A-12
Q	962	Transistor	2SC3052-12
Q	980	Transistor	IMD2A
Q	981	Transistor	2SC3052-12
D	131	Diode	MA3039(L)
D	141	Diode	UDZ3R9(B)
D	142	Diode	RB706F-40
D	271	Diode(P930/UC)	1SS396
D	272	Diode(P930/UC)	1SS396
		Diode(P9300/UC, P9350/ES)	DA204K
D	721	Diode	HZS9L(B1)
D	752	Diode	HZS6L(B3)
D	801	Diode Network	DA204U
D	802	Diode Network	DA204U
D	803	Diode Network	DA204U
D	804	Diode Network	DA204U
D	805	Diode	MA3062(M)
D	810	Diode	HZS9L(C2)
D	811	Diode Network	DA204U
D	814	Diode Network	DA204U
D	815	Diode	HZS11L(A1)
D	851	Diode	HZS7L(C3)
D	852	Diode	1SS133
D	853	Diode	1SS133
D	901	Diode	MPG06G-6415G50
D	902	Diode	MPG06G-6415G50
D	903	Diode	MPG06G-6415G50
D	904	Diode	MPG06G-6415G50
D	911	Diode	MPG06G-6415G50
D	912	Diode	HZS6L(B1)
D	921	Diode	HZS9L(B3)
D	931	Diode	HZS7L(A1)
D	932	Diode	HZS7L(C3)
D	933	Diode	MPG06G-6415G50
D	951	Diode	DAN202U
D	961	Diode	DAN202U
D	971	Diode	DAN202U
D	981	Diode	DAN202U
D	982	Diode	HZS9L(A2)
D	983	Diode	MA152K
ZNR	451	Surge Protector	DSPS-201M-S00B
L	101	Inductor	LCTB3R3K2125
L	131	Inductor	CTF1388
L	221	Inductor	CTF1464
L	251	Inductor	LAU1R0K
L	252	Ferri-Inductor	LAU2R2K
L	253	Inductor	CTF1531
L	254	Inductor	CTF1529
L	255	Inductor	CTF1388
L	271	Ferri-Inductor	LAU101K
L	401	Inductor	LAU100K
L	402	Inductor	LCTB4R7K2125
L	404	Ferri-Inductor	LAU2R2K

=====Circuit Symbol and No.		===Part Name	Part No.
L	601	Inductor	LAU100K
L	661	Inductor	LAU100K
L	801	Inductor	LAU100K
L	802	Inductor	CTF1489
L	951	Inductor	CTF1530
X	601	Radiator 10.00MHz	CSS1475
IL	801	Lamp 60mA,14V	CEL1690
VR	141	Semi-fixed 10kΩ(B)	CCP1448
FU	201	Fuse 200mA	CEK1189
MIC	141	Microphone	CPM1011
SP	641	Buzzer	CPV1050
		DSP Unit	CWM7704
		FM/AM Tuner Unit	CWE1563

RESISTORS

R	101		RS1/16S101J
R	102		RS1/16S470J
R	103		RS1/16S101J
R	104		RS1/16S222J
R	105		RS1/16S103J
R	107		RS1/16S332J
R	108		RS1/16S181J
R	109		RS1/16S181J
R	110		RS1/16S223J
R	111		RS1/16S223J
R	112		RS1/16S102J
R	113		RS1/16S102J
R	115		RS1/16S562J
R	116		RS1/16S150J
R	117		RS1/16S0R0J
R	118		RS1/16S0R0J
R	119		RS1/16S0R0J
R	120		RS1/16S0R0J
R	130		RS1/16S0R0J
R	131		RS1/16S104J
R	132		RS1/16S222J
R	133		RS1/16S103J
R	134		RS1/16S561J
R	135		RS1/16S223J
R	136		RS1/16S473J
R	137		RS1/16S153J
R	138		RS1/16S683J
R	139		RS1/16S682J
R	140		RS1/16S152J
R	141		RS1/16S222J
R	142		RS1/16S104J
R	143		RS1/16S152J
R	144		RS1/16S102J
R	145		RS1/16S101J
R	146		RS1/16S563J
R	147		RS1/16S103J
R	148		RS1/16S103J
R	149		RS1/16S153J
R	150		RS1/16S153J
R	151		RS1/16S223J
R	152		RS1/16S4702D
R	154		RS1/16S4702D
R	155		RS1/16S152J
R	161		RS1/16S272J
R	162		RS1/16S272J
R	163		RS1/16S162J
R	164		RS1/16S162J
R	171		RS1/16S0R0J
R	172		RS1/16S0R0J
R	201		RS1/16S102J
R	202		RS1/16S103J
R	203		RS1/16S103J
R	204		RS1/16S103J
R	205		RS1/16S474J
R	206		RS1/16S0R0J

=====Circuit Symbol and No.		===Part Name	Part No.
R	208		RS1/16S0R0J
R	211		RS1/16S102J
R	212		RS1/16S102J
R	221		RS1/16S152J
R	222		RS1/16S223J
R	223		RS1/16S103J
R	224		RS1/16S105J
R	225		RS1/16S104J
R	226		RS1/16S103J
R	227		RS1/16S473J
R	228		RS1/16S102J
R	229		RS1/16S102J
R	231		RS1/16S271J
R	232		RS1/16S5601D
R	233		RS1/16S1001D
R	234		RS1/16S104J
R	235		RS1/16S104J
R	236		RS1/16S103J
R	241		RS1/16S223J
R	242		RS1/16S103J
R	243		RS1/16S1302D
R	244		RS1/16S1002D
R	251		RS1/16S472J
R	252		RS1/16S122J
R	271		RS1/16S103J
R	272	(P9300/UC, P9350/ES)	RS1/16S0R0J
R	277		RS1/16S103J
R	301		RS1/16S103J
R	302		RS1/16S103J
R	303		RS1/16S103J
R	304		RS1/16S331J
R	351		RS1/16S820J
R	352		RS1/16S820J
R	353		RS1/16S820J
R	354		RS1/16S820J
R	355		RS1/16S820J
R	356		RS1/16S820J
R	357		RS1/16S223J
R	358		RS1/16S223J
R	359		RS1/16S223J
R	360		RS1/16S223J
R	361		RS1/16S223J
R	362		RS1/16S223J
R	363		RS1/16S103J
R	364	(P930/UC)	RS1/16S103J
		(P9300/UC, P9350/ES)	RS1/16S0R0J
R	365	(P930/UC)	RS1/16S103J
		(P9300/UC, P9350/ES)	RS1/16S0R0J
R	366	(P930/UC)	RS1/16S103J
		(P9300/UC, P9350/ES)	RS1/16S0R0J
R	367	(P930/UC)	RS1/16S103J
		(P9300/UC, P9350/ES)	RS1/16S0R0J
R	368	(P930/UC)	RS1/16S103J
		(P9300/UC, P9350/ES)	RS1/16S0R0J
R	369		RS1/16S471J
R	370		RS1/16S471J
R	371		RS1/16S471J
R	372		RS1/16S471J
R	373		RS1/16S471J
R	374		RS1/16S471J
R	375		RS1/16S0R0J
R	377		RS1/16S0R0J
R	401		RS1/16S473J
R	402		RS1/16S473J
R	403		RS1/16S681J
R	404		RS1/16S681J
R	409		RS1/16S681J
R	410		RS1/16S103J
R	411		RS1/16S681J
R	412		RS1/16S681J

Circuit Symbol and No.			Part Name	Part No.
R	413			RS1/16S681J
R	414			RS1/16S473J
R	415			RS1/16S472J
R	416			RS1/16S473J
R	417			RS1/16S473J
R	418			RS1/16S473J
R	419			RS1/16S222J
R	420			RS1/16S222J
R	423			RS1/16S0R0J
R	424			RS1/16S393J
R	429			RS1/16S0R0J
R	601			RS1/16S104J
R	602			RS1/16S102J
R	603			RS1/16S104J
R	604			RS1/16S472J
R	605			RS1/16S221J
R	606			RS1/16S682J
R	607			RS1/16S221J
R	608			RS1/16S682J
R	609			RS1/16S102J
R	610			RS1/16S102J
R	611			RS1/16S473J
R	612			RS1/16S473J
R	613			RS1/16S104J
R	615			RS1/16S221J
R	616			RS1/16S682J
R	617			RS1/16S221J
R	618			RS1/16S682J
R	619			RS1/16S221J
R	620			RS1/16S473J
R	621			RS1/16S221J
R	622			RS1/16S682J
R	623			RS1/16S104J
R	624			RS1/16S104J
R	625			RS1/16S473J
R	626	(P6350/ES)		RS1/16S104J
R	627	(P630/UC, P6300/UC))		RS1/16S104J
R	633			RS1/16S0R0J
R	634			RS1/16S0R0J
R	635			RS1/16S0R0J
R	636			RS1/16S0R0J
R	641			RS1/16S102J
R	651			RS1/16S473J
R	701			RS1/16S473J
R	713			RS1/16S102J
R	715			RS1/16S0R0J
R	716			RS1/16S0R0J
R	717			RS1/16S0R0J
R	718			RS1/16S0R0J
R	719			RS1/16S0R0J
R	721			RD1/4PU101J
R	722			RS1/16S221J
R	723			RD1/4PU101J
R	751			RS1/16S152J
R	752			RS1/16S221J
R	753			RS1/16S182J
R	754			RS1/16S0R0J
R	801			RS1/16S222J
R	802			RS1/16S222J
R	803			RS1/16S222J
R	804			RS1/16S103J
R	805			RS1/16S222J
R	807			RS1/16S1R0J
R	808			RS1/16S103J
R	809			RS1/16S103J

Circuit Symbol and No.			Part Name	Part No.
R	810			RD1/4PU561J
R	812			RS1/16S102J
R	814			RD1/4PU391J
R	817			RS1/16S473J
R	818			RS1/16S472J
R	823			RS1/16S222J
R	824			RS1/10S1R0J
R	825			RS1/16S0R0J
R	826			RS1/16S222J
R	851			RAB4C102J
R	852			RS1/16S102J
R	853			RS1/16S102J
R	861			RS1/16S102J
R	862			RS1/16S102J
R	911			RS1/16S0R0J
R	912			RS1/16S821J
R	913			RS1/16S153J
R	914			RS1/16S821J
R	922			RD1/4PU221J
R	923			RS1/16S223J
R	924			RD1/4PU272J
R	925			RS1/16S471J
R	926			RS1/16S561J
R	931			RS1/16S472J
R	932			RS1/16S473J
R	933			RS1/16S103J
R	934			RS1/16S473J
R	935			RS1/16S104J
R	936			RS1/16S103J
R	951			RS1/16S153J
R	952			RS1/16S472J
R	953			RS1/16S472J
R	954			RS1/16S102J
R	961			RS1/16S102J
R	962			RS1/16S102J
R	963			RS1/16S473J
R	964			RS1/16S183J
R	965			RS1/16S222J
R	981			RS1/16S223J
R	982			RS1/16S473J
R	983			RS1/16S103J
R	984			RS1/16S473J
R	985			RS1/16S102J

CAPACITORS

Circuit Symbol and No.			Part Name	Part No.
C	131			CCSRCH681J50
C	132			CEJQ101M10
C	133			CKSQYB225K10
C	141			CKSRYF105Z10
C	142			CKSRYB105K10
C	143			CKSRYB105K10
C	144			CCSRCH101J50
C	145			CEJQNP4R7M16
C	146			CKSRYB105K10
C	147			CEJQNP4R7M16
C	148			CKSRYB105K10
C	149			CKSRYB104K25
C	150			CEJQNP100M10
C	152			CKSRYB474K10
C	155			CKSRYF105Z10
C	161			CKSRYB183K25
C	162			CKSRYB183K25
C	201			CKSRYF224Z16
C	202			CKSRYB102K50
C	203			CCSRCH101J50

=====Circuit Symbol and No.		===Part Name	Part No.
C	204		CKSRYB104K25
C	205		CKSRYB222K50
C	206		CKSRYF224Z16
C	221		CKSRYB473K25
C	222		CKSRYF224Z16
C	223		CCSRCH471J50
C	224		CKSRYB104K25
C	225		CEJQ100M16
C	231		CKSRYF224Z16
C	232		CCSRCH101J50
C	241		CEJQ100M16
C	242		CKSRYB104K25
C	243		CEJQ100M16
C	244		CKSRYB104K25
C	245		CKSQYB225K10
C	246		CKSQYB225K10
C	247		CKSQYB225K10
C	248		CKSQYB225K10
C	251		CEJQ220M25
C	252		CKSRYF105Z10
C	253		CKSQYB225K10
C	254		CKSRYF105Z10
C	256		CCSRCH101J50
C	257		CCSRCH101J50
C	258		CEJQ101M6R3
C	259		CEJQ221M6R3
C	263		CEJQ470M10
C	266		CKSQYB225K10
C	269		CCSRCH101J50
C	271		CEJQ4R7M35
C	272		CEJQ101M16
C	273		CASAQ3R3M16
C	274		CEJQ100M16
C	275		CKSYB684K25
C	276		CASA220M16
C	277		CKSRYF105Z10
C	278		CEJQ330M25
C	279		CEJQ330M25
C	280	(P930/UC)	CEJQ330M25
C	281	(P930/UC)	CEJQ330M25
C	283		CKSRYB105K10
C	284		CKSRYB105K10
C	285		CKSRYB105K10
C	286		CKSRYB105K10
C	287		CKSRYB105K10
C	288		CKSRYB105K10
C	301		CKSRYB474K10
C	302		CKSRYB474K10
C	303		CKSRYB474K10
C	304		CKSRYB474K10
C	306		CEHAR330M10
C	307	3300µF/16V	CCH1330
C	308		CKSRYB104K25
C	309		CEHAR100M16
C	310		CKSQYB225K10
C	311		CKSRYB474K10
C	312		CKSRYB474K10
C	313		CKSRYB474K10
C	314		CKSRYB474K10
C	315		CKSQYB225K10
C	351		CEJQ100M50
C	352		CEJQ100M50
C	353		CEJQ100M50
C	354		CEJQ100M50
C	355		CEJQ100M50

=====Circuit Symbol and No.		===Part Name	Part No.
C	356		CEJQ100M50
C	357		CKSRYB222K50
C	358		CKSRYB222K50
C	359		CKSRYB222K50
C	360		CKSRYB222K50
C	361		CKSRYB222K50
C	362		CKSRYB222K50
C	403		CKSRYB473K25
C	404		CEJQ101M10
C	405		CKSRYB103K50
C	406		CEJQ220M10
C	407		CKSQYB103K50
C	408		CKSRYB223K25
C	409		CKSRYB223K25
C	411		CKSRYB472K50
C	601		CCSRCH180J50
C	602		CCSRCH180J50
C	603		CCSRCH101J50
C	604		CKSRYB103K50
C	605		CEJQ4R7M35
C	606		CKSQYB225K10
C	701		CCSRCH101J50
C	702		CCSRCH101J50
C	703		CCSRCH101J50
C	705		CCSRCH101J50
C	721		CKSRYB473K25
C	722		CKSRYB102K50
C	723		CEV101M16
C	751		CKSRYB472K50
C	752		CEAL470M10
C	805		CEJQ101M16
C	806		CKSRYB473K25
C	808		CCSRCH101J50
C	809		CKSRYB104K25
C	810		CEV470M6R3
C	812		CKSRYB103K50
C	815		CCSRCH101J50
C	816		CCSRCH101J50
C	817		CCSRCH101J50
C	818		CEJQ330M16
C	819		CCSRCH101J50
C	851		CKSRYB102K50
C	852		CKSRYB104K25
C	853		CEJQ220M10
C	855		CKSRYB102K50
C	856		CCSRCH101J50
C	857		CCSRCH101J50
C	911	470µF/16V	CCH1331
C	912		CKSRYB472K50
C	913		CKSRYB103K50
C	914		CEAL470M10
C	915	470µF/16V	CCH1331
C	921		CEAT331M10
C	922		CKSRYB103K50
C	923		CEV101M16
C	931		CKSRYB104K25
C	932		CKSRYB104K25
C	962		CKSRYB104K25
C	963		CKSRYB105K10

B Unit Number : CWM7704
Unit Name : DSP Unit

MISCELLANEOUS

=====Circuit Symbol and No.	===Part Name	Part No.
IC 1501	IC	PD5654A
IC 1502	IC	PDG262A
IC 1503	IC	TC7SET08FU
IC 1504	IC	TC74VHC126FT
IC 1601	IC	PML011A
IC 1602	IC	NJM4558MD
IC 1603	IC	NJM4558MD
IC 1604	IC	NJM4558MD
IC 1605	IC	NJM4558MD
Q 1601	Transistor	DTC124EU
L 1501	Inductor	CTF1379
L 1531	Inductor	CTF1379
L 1532	Inductor	CTF1379
L 1533	Inductor	CTF1379
L 1534	Inductor	CTF1379
L 1535	Inductor	CTF1379
L 1536	Inductor	CTF1379
L 1537	Inductor	CTF1379
L 1538	Inductor	CTF1379
L 1539	Inductor	CTF1379
L 1541	Inductor	LCTA151J3225
L 1571	Inductor	CTF1389
L 1572	Inductor	CTF1379
L 1573	Inductor	CTF1409
L 1574	Inductor	CTF1379
X 1501	Radiator 10.00MHz	CSS1428
X 1502	Radiator 16.9344MHz	CSS1463

RESISTORS

=====Circuit Symbol and No.	===Part Name	Part No.
R 1501		RS1/16S473J
R 1504		RAB4C681J
R 1505		RS1/16S102J
R 1506		RS1/16S102J
R 1507		RS1/16S105J
R 1508		RS1/16S102J
R 1510		RS1/16S471J
R 1511		RS1/16S102J
R 1512		RAB4C473J
R 1513		RS1/16S222J
R 1514		RAB4C681J
R 1515		RS1/16S104J
R 1516		RAB4C471J
R 1517		RS1/16S473J
R 1518		RS1/16S102J
R 1519		RS1/16S473J
R 1520		RS1/16S102J
R 1521		RS1/16S222J
R 1522		RS1/16S222J
R 1523		RS1/16S104J
R 1524		RS1/16S102J
R 1525		RS1/16S102J
R 1526		RS1/16S473J
R 1527		RS1/16S221J
R 1528		RS1/16S102J
R 1530		RS1/16S473J
R 1531		RS1/16S225J
R 1532		RS1/16S331J
R 1533		RS1/16S155J
R 1534		RAB4C221J
R 1535		RS1/16S221J
R 1536		RS1/16S221J
R 1571		RS1/16S221J
R 1572		RS1/16S473J
R 1573		RS1/16S473J
R 1574		RS1/16S473J
R 1575		RS1/16S473J
R 1576		RS1/16S102J
R 1577		RS1/16S102J
R 1578		RS1/16S102J
R 1579		RS1/16S0R0J
R 1603		RS1/16S103J
R 1604		RS1/16S0R0J
R 1606		RS1/16S103J
R 1607		RS1/16S153J
R 1608		RS1/16S682J
R 1609		RAB4C0R0J
R 1610		RS1/16S0R0J
R 1611		RS1/16S0R0J
R 1621		RS1/16S223J
R 1622		RS1/16S472J
R 1623		RS1/16S223J
R 1624		RS1/16S472J
R 1625		RS1/16S103J
R 1626		RS1/16S103J
R 1627		RS1/16S103J
R 1628		RS1/16S103J
R 1629		RS1/16S474J
R 1630		RS1/16S474J
R 1631		RS1/16S474J
R 1632		RS1/16S222J
R 1633		RS1/16S333J
R 1634		RS1/16S273J
R 1635		RS1/16S183J
R 1636		RS1/16S273J
R 1637		RS1/16S474J
R 1638		RS1/16S222J
R 1639		RS1/16S333J
R 1640		RS1/16S273J
R 1641		RS1/16S183J
R 1642		RS1/16S273J
R 1643		RS1/16S474J
R 1644		RS1/16S222J
R 1645		RS1/16S333J
R 1646		RS1/16S273J
R 1647		RS1/16S183J
R 1648		RS1/16S273J
R 1649		RS1/16S474J
R 1650		RS1/16S222J
R 1651		RS1/16S333J
R 1652		RS1/16S273J
R 1653		RS1/16S183J
R 1654		RS1/16S273J
R 1655		RS1/16S474J
R 1656		RS1/16S222J
R 1657		RS1/16S333J
R 1658		RS1/16S273J
R 1659		RS1/16S183J
R 1660		RS1/16S273J
R 1661		RS1/16S474J
R 1662		RS1/16S222J
R 1663		RS1/16S333J
R 1664		RS1/16S273J
R 1665		RS1/16S183J
R 1666		RS1/16S273J
R 1667		RS1/16S472J
R 1668		RS1/16S104J
R 1669		RS1/16S102J
R 1670		RS1/16S473J
R 1671		RS1/16S0R0J

=====Circuit Symbol and No.	Part Name	Part No.
CAPACITORS		
C 1532		CKSRYB102K50
C 1533		CSZSQ4R7M10
C 1534		CKSRYB104K25
C 1535		CKSQYB225K10
C 1537		CKSQYB225K10
C 1539		CKSRYB105K10
C 1540		CKSRYB105K10
C 1541		CKSRYB105K10
C 1542		CKSRYB105K10
C 1543		CKSRYB105K10
C 1544		CKSRYB105K10
C 1545		CKSRYB104K25
C 1546		CKSRYB104K25
C 1547		CKSRYB104K25
C 1548		CKSRYB104K25
C 1549		CKSRYB104K25
C 1550		CKSRYB104K25
C 1551		CKSRYB104K25
C 1552		CKSRYB104K25
C 1553		CKSRYB104K25
C 1554		CKSRYB104K25
C 1555		CKSRYB104K25
C 1556		CCSRCH180J50
C 1557		CCSRCH180J50
C 1558		CSZSQ4R7M10
C 1560		CKSRYB104K25
C 1561		CKSRYB104K25
C 1562		CSZSQ4R7M10
C 1563		CKSRYB104K25
C 1564		CKSRYB104K25
C 1572		CCSRCH270J50
C 1573		CCSRCH100D50
C 1574		CKSRYB103K50
C 1575		CCSRCH101J50
C 1601		CKSRYB104K25
C 1602		CSZSR100M10
C 1606		CKSRYF105Z10
C 1611		CKSRYF105Z10
C 1612		CKSRYF105Z10
C 1613		CKSQYB225K10
C 1614		CKSRYB104K25
C 1616		CKSRYB472K50
C 1617		CKSRYB472K50
C 1618		CSZSR100M10
C 1619		CKSRYF105Z10
C 1621		CKSRYB102K50
C 1622		CCSRCH221J50
C 1623		CKSRYB102K50
C 1624		CCSRCH221J50
C 1625		CKSRYB105K10
C 1626		CKSRYB105K10
C 1628		CSZSR100M16
C 1629		CSZSR100M16
C 1631		CCSRCH221J50
C 1632		CCSRCH151J50
C 1633		CCSRCH151J50
C 1634		CKSQYB225K10
C 1635		CCSRCH221J50
C 1636		CCSRCH151J50
C 1637		CCSRCH151J50
C 1638		CKSQYB225K10
C 1639		CKSQYB225K10
C 1640		CKSQYB225K10
C 1641		CCSRCH221J50
C 1642		CCSRCH151J50
C 1643		CCSRCH151J50
C 1644		CKSQYB225K10
C 1645		CCSRCH221J50
C 1646		CCSRCH151J50
C 1647		CCSRCH151J50
C 1648		CKSQYB225K10
C 1649		CKSQYB225K10
C 1650		CKSQYB225K10
C 1651		CCSRCH221J50
C 1652		CCSRCH151J50
C 1653		CCSRCH151J50
C 1654		CKSQYB225K10
C 1655		CCSRCH221J50
C 1656		CCSRCH151J50
C 1657		CCSRCH151J50
C 1658		CKSQYB225K10
C 1659		CKSQYB225K10
C 1660		CKSQYB225K10
C 1661		CKSRYB105K10

C Unit Number : CWM7713
Unit Name : Keyboard Unit

=====Circuit Symbol and No.	Part Name	Part No.
MISCELLANEOUS		
IC 1901		RS-140
IC 1902	IC	PD5657A
IC 1903	IC	S-80734ANDYI
IC 1905	IC	PD8080A
IC 1906	IC	PD6363A
IC 1907	IC	PD3428A
Q 1901	Transistor	IMD2A
Q 1902	Transistor	IMD2A
Q 1903	Transistor	2SC4154-11
Q 1904	Transistor	2SC4154-11
D 1901	Diode	DAP202U
D 1902	Diode	DAN202U
D 1905	Diode	MA110
D 1906	Diode	DAN202U
D 1907	Diode	UDZ13(B)
D 1908	Diode	DTZ3R9(A)
D 1909	LED	CL170UBX
D 1910	LED	CL170UBX
D 1911	LED	CL170UBX
D 1912	LED	CL170UBX
D 1913	LED	CL170UBX
D 1914	LED	CL170UBX
D 1915	LED	CL170UBX
D 1916	LED	CL170UBX
D 1917	LED	CL170UBX
D 1918	LED	CL170UBX
L 1901	Inductor	CTF1295
L 1902	Inductor	CTF1484
L 1903	Inductor	LCTB4R7K1608
L 1904	Inductor	LCTB2R2K3216
L 1905	Inductor	LCTB2R2K3216
L 1906	Inductor	LCTB2R2K3216
L 1907	Inductor-Array	CTF1421
L 1908	Inductor-Array	CTF1421
L 1909	Inductor-Array	CTF1421
L 1910	Inductor-Array	CTF1421
L 1911	Inductor	LCTB2R2K3216
L 1912	Inductor	CTF1530
L 1913	Inductor-Array	CTF1421
L 1914	Inductor-Array	CTF1421
L 1915	Inductor-Array	CTF1421
L 1916	Inductor-Array	CTF1421
L 1917	Inductor-Array	CTF1421
L 1918	Inductor-Array	CTF1421
L 1919	Inductor-Array	CTF1421

=====Circuit Symbol and No.		===Part Name	Part No.
L	1920	Inductor-Array	CTF1421
L	1921	Inductor	CTF1379
L	1922	Inductor	CTF1409
L	1923	Inductor	CTF1379
L	1924	Inductor	CTF1379
L	1925	Inductor	CTF1295
L	1926	Inductor	CTF1295
L	1927	Inductor	CTF1295
L	1928	Inductor	LCTB8R2K1608
L	1929	Inductor	CTF1388
X	1901	Ceramic Resonator 20MHz	CSS1491
S	1901	Push Switch	CSG1111
S	1902	Push Switch	CSG1111
S	1903	Push Switch	CSG1111
S	1904	Push Switch	CSG1111
S	1905	Push Switch	CSG1111
S	1906	Push Switch	CSG1111
S	1907	Push Switch	CSG1111
S	1908	Push Switch	CSG1111
S	1909	Push Switch	CSG1111
S	1910	Push Switch	CSG1111
S	1911	Push Switch	CSG1111
S	1912	Push Switch	CSG1111
S	1913	Push Switch	CSG1111
S	1914	Push Switch	CSG1111
S	1916	Push Switch	CSG1145
S	1917	Push Switch	CSG1111
		OEL Module	MXK8014

RESISTORS

R	1901		RS1/16S222J
R	1902		RS1/16S222J
R	1905		RS1/16S103J
R	1906		RS1/16S121J
R	1907		RS1/16S2R2J
R	1908		RS1/16S222J
R	1913		RAB4C102J
R	1915		RS1/16S473J
R	1916		RS1/16S102J
R	1917		RS1/16S104J
R	1918		RS1/16S0R0J
R	1919		RS1/16S101J
R	1920		RS1/16S101J
R	1923		RS1/16S101J
R	1924		RS1/16S473J
R	1925		RS1/16S101J
R	1927		RS1/16S101J
R	1933		RAB4C102J
R	1934		RAB4C473J
R	1936		RS1/16S473J
R	1937		RS1/16S473J
R	1938		RS1/16S473J
R	1939		RS1/16S473J
R	1940		RS1/16S102J
R	1941		RS1/16S221J
R	1942		RS1/16S223J
R	1943		RS1/16S223J
R	1945		RS1/16S470J
R	1947		RS1/16S470J
R	1949		RS1/16S470J
R	1951		RS1/16S470J
R	1952		RS1/16S331J
R	1953		RS1/16S331J
R	1955		RS1/16S470J
R	1960		RS1/16S560J
R	1961		RS1/16S560J
R	1962		RS1/16S560J
R	1963		RS1/16S560J
R	1964		RS1/16S331J
R	1965		RS1/16S331J

=====Circuit Symbol and No.		===Part Name	Part No.
R	1966		RS1/16S560J
R	1967		RS1/16S0R0J

CAPACITORS

C	1901		CSZSR100M10
C	1902		CKSRYF105Z10
C	1904		CSZSR100M10
C	1906	4.7µF/25V	CCG1111
C	1908		CSZSR100M16
C	1909		CKSRYB105K10
C	1911		CKSRYB104K25
C	1916		CKSRYB103K50
C	1917		CSZSR100M10
C	1918		CKSRYB103K50
C	1920		CKSRYB103K50
C	1921		CSZSR100M16
C	1922		CKSRYB103K50
C	1923		CSZSR100M10
C	1924		CCSRCH101J50
C	1925		CKSRYB102K50
C	1926		CSZSR100M10
C	1930		CCSRCH101J50
C	1931		CCSRCH101J50
C	1932		CKSRYB104K25
C	1933		CKSRYB104K25
C	1934		CKSRYB104K25
C	1935		CKSRYB104K25
C	1936		CKSRYB104K25
C	1937		CKSRYB104K25
C	1938		CKSRYB104K25
C	1939		CKSRYB104K25
C	1940		CKSRYB104K25
C	1941		CKSRYB104K25
C	1943		CKSRYB104K25
C	1949		CKSRYB103K50
C	1952		CCSRCH101J50
C	1953		CCSRCH101J50
C	1956		CCSRCH101J50
C	1957		CCSRCH101J50
C	1963		CCSRCH101J50
C	1964		CCSRCH101J50
C	1965		CKSRYB104K25

E Unit Number :
Unit Name : Switch PCB

S	951	Switch(CLOSE)	CSN1012
S	952	Switch(OPEN)	CSN1022

F Unit Number : CWX2502
Unit Name : Control Unit

MISCELLANEOUS

IC	101	IC	TA2153FN
IC	201	IC	TC9495F2
IC	401	IC	BA5996FM
IC	601	IC	PE5193A
IC	701	IC	BA05SFP
Q	101	Transistor	2SD1664
Q	102	Transistor	UMD2N
Q	601	Transistor	UN2111
L	201	Inductor	CTF1546
L	202	Inductor	CTF1546
L	318	Inductor	CTF1306
L	319	Inductor	CTF1306
L	320	Inductor	CTF1306
TH	601	Thermistor	CCX1037
X	601	Ceramic Resonator 25MHz	CSS1510

=====Circuit Symbol and No.		===Part Name	Part No.
S	901	Spring Switch(HOME)	CSN1051
S	902	Spring Switch(CLAMP)	CSN1052
S	903	Spring Switch(DSCSNS)	CSN1051
S	904	Spring Switch(12EJ)	CSN1052
S	905	Spring Switch(8EJ)	CSN1051

RESISTORS

R	101		RS1/16S222J
R	102		RS1/8S120J
R	103		RS1/8S100J
R	201		RS1/16S513J
R	202		RS1/16S513J
R	203		RS1/16S823J
R	204		RS1/16S823J
R	206		RS1/16S823J
R	208		RS1/16S124J
R	209		RS1/16S183J
R	210		RS1/16S153J
R	211		RS1/16S103J
R	212		RS1/16S103J
R	213		RS1/16S124J
R	215		RS1/16S0R0J
R	216		RS1/16S471J
R	301		RS1/16S333J
R	302		RS1/16S332J
R	303		RS1/16S332J
R	304		RS1/16S514J
R	305		RS1/16S392J
R	308		RS1/16S221J
R	309		RS1/16S221J
R	310		RS1/16S221J
R	312		RS1/16S103J
R	313		RS1/16S473J
R	315		RS1/16S334J
R	323		RS1/16S0R0J
R	324		RS1/16S332J
R	326		RS1/16S0R0J
R	401		RS1/16S684J
R	402		RS1/16S103J
R	403		RS1/16S103J
R	404		RS1/16S183J
R	405		RS1/16S123J
R	407		RS1/16S622J
R	408		RS1/16S622J
R	409		RS1/16S113J
R	410		RS1/16S752J
R	601		RS1/16S102J
R	602		RS1/16S102J
R	603		RS1/16S102J
R	604		RS1/16S102J
R	606		RS1/16S102J
R	607		RS1/16S473J
R	608		RS1/16S223J
R	609		RN1/16SE1302D
R	610		RS1/16S104J
R	611		RS1/16S222J
R	612		RS1/16S103J
R	615		RS1/16S104J
R	616		RS1/16S0R0J
R	618		RS1/16S102J
R	619		RS1/16S102J
R	620		RS1/16S102J
R	621		RS1/16S102J
R	622		RS1/16S102J
R	623		RS1/16S102J
R	625		RS1/16S104J
R	701		RS1/16S681J

=====Circuit Symbol and No.		===Part Name	Part No.
R	702		RS1/16S681J
R	703		RS1/16S681J
R	704		RS1/16S681J
R	705		RS1/16S681J
R	706		RS1/16S102J
R	901		RS1/16S104J
R	902		RS1/16S473J
R	903		RS1/16S273J

CAPACITORS

C	101		CEV470M6R3
C	102		CKSRYB102K50
C	103		CKSRYB104K16
C	104		CKSRYB224K16
C	105		CEV470M6R3
C	106		CKSRYB104K16
C	107		CKSRYB105K6R3
C	201		CKSRYB104K16
C	202		CCSRCH560J50
C	204		CKSRYB224K16
C	205		CKSRYB224K16
C	206		CKSRYB273K25
C	207		CKSRYB273K25
C	208		CKSRYB104K16
C	209		CKSRYB104K16
C	210		CCSRCK2R0C50
C	211		CCSRCH220J50
C	301		CKSRYB153K25
C	302		CKSRYB104K16
C	303		CKSRYB103K50
C	304		CKSRYB103K50
C	305		CKSRYB104K16
C	306		CKSRYB104K16
C	307		CKSRYB333K16
C	308		CKSRYB104K16
C	309		CKSRYB473K16
C	310		CKSRYB473K16
C	311		CKSRYB104K16
C	312		CKSRYB104K16
C	313		CKSRYB104K16
C	314		CKSRYB221K50
C	317		CKSRYB104K16
C	318		CKSRYB104K16
C	319		CKSRYB104K16
C	320		CCSRCH470J50
C	325		CKSRYB471K50
C	328		CKSRYB472K50
C	329		CKSRYB104K16
C	401		CKSRYB221K50
C	402		CKSRYB221K50
C	403		CKSRYB153K25
C	404		CKSRYB103K50
C	405		CEV101M10
C	601		CKSRYB103K50
C	602		CKSRYB472K50
C	604		CKSRYB471K50
C	605		CKSRYB104K16
C	606		CKSRYB104K16
C	607		CKSRYB104K16
C	608		CKSRYB104K16
C	701		CKSRYB104K16
C	801	10µF/10V	CCH1349
C	802		CEV101M10
C	803		CKSRYB224K16

Miscellaneous Parts List

		PU Unit	CXX1480
M	1	Motor Unit(SPINDLE)	CXB6007
M	2	Motor Unit(LOADING/CARRIAGE)	CXB5903
M	951	Motor(AUTOMATIC FLAP)	CXM1085

6. ADJUSTMENT

6.1 CD ADJUSTMENT

1) Precautions

- This unit uses a single power supply (+5V) for the regulator. The signal reference potential, therefore, is connected to VREF(approx. 2.1V) instead of GND.
  If VREF and GND are connected to each other by mistake during adjustments, not only will it be impossible to measure the potential correctly, but the servo will malfunction and a severe shock will be applied to the pick-up. To avoid this, take special note of the following.
  Do not connect the negative probe of the measuring equipment to VREF and GND together. It is especially important not to connect the channel 1 negative probe of the oscilloscope to VREF with the channel 2 negative probe connected to GND.
  Since the frame of the measuring instrument is usually at the same potential as the negative probe, change the frame of the measuring instrument to floating status.
  If by accident VREF comes in contact with GND, immediately switch the regulator or power OFF.

- Always make sure the regulator is OFF when connecting and disconnecting the various filters and wiring required for measurements.

- Before proceeding to further adjustments and measurements after switching regulator ON, let the player run for about one minute to allow the circuits to stabilize.

- Since the protective systems in the unit's software are rendered inoperative in test mode, be very careful to avoid mechanical and /or electrical shocks to the system when making adjustment.

- The RFI and RFO signals are easy to oscillate because of a wide band. When observing them, insert a resistor of about 1 kΩ to the series.

- This equipment will not guarantee the load ejection operation when the mechanical unit is turned upside down. In particular, if the ejection operation is incorrectly performed and recovery is disabled, the recovery is enabled by resetting a product or turning ACC off to on.

2) Test Mode

This mode is used for adjusting the CD mechanism module of the device.

- Test mode starting procedure
  Reset while pressing the **4** and **6** keys together.

- Test mode cancellation
  Switch ACC, back-up OFF.

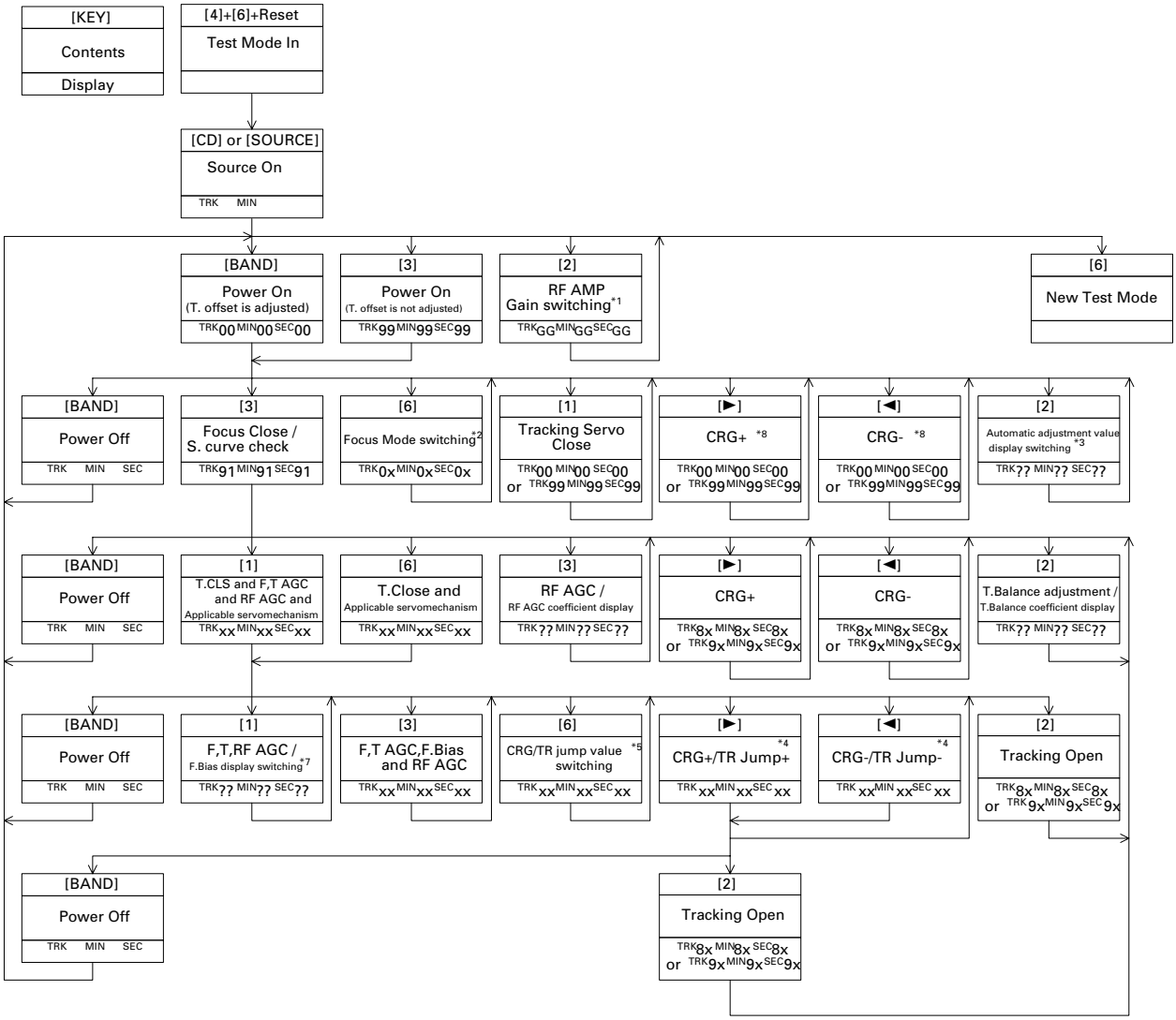
- After pressing the EJECT key, do not press any other key until the disk is completely ejected.

- If the ► or ◄ key is pressed while focus search is in progress, immediately turn the power off (otherwise the actuator may be damaged due to adhesion of the lenses).

- Jump operation of TRs other than 100TR continues after releasing the key. CRG move and 100TR jump operations are brought into the "Tracking close" status when the key is released.

- Powering Off/On resets the jump mode to "Single TR(91)", the RF AMP gain setting to 0 dB, and the automatic adjustment value to the initial value.

● Flow Chart



*1) TYP (TRK MIN SEC) → +12dB (TRK12 MIN12 SEC12)

*2) Focus Close setting (TRK00 MIN00 SEC00 or TRK99 MIN99 SEC99) → S. curve check setting (TRK01 MIN01 SEC01) → F. EQ measurement setting (TRK02 MIN02 SEC02)

*3) F.Offset Display → T.Offset Display → Switch to the order of the original display

*4) 1TR/32TR/100TR

*5 Single TR (TRK91 MIN91 SEC91 or TRK81 MIN81 SEC81) → 32TR (TRK92 MIN92 SEC92 or TRK82 MIN82 SEC82) → 100TR (TRK93 MIN93 SEC93 or TRK83 MIN83 SEC83) → CRG Move (TRK94 MIN94 SEC94 or TRK84 MIN84 SEC84)

*6) Only at the time of CRG move or 100TR jump

*7) TRK/MIN/SEC → F.AGC Gain → T.AGC Gain → F.Bias → RF AGC Gain

*8) CRG motor voltage = 2 [V]

[Key]	Operation	
	Test Mode	New Test Mode
[BAND]	Power On/Off	Error occurrence time/ cause display switching
[►]	CRG +/TR Jump+ (Direction of the external surface)	TRK+/FF
[◄]	CRG -/TR Jump- (Direction of the internal surface)	TRK-/REV
[1]	T.CLS and AGC and Applicable servomechanism/ AGC,AGC display switching	SCAN
[2]	RF Gain switching/Offset adjustment display/ T.Balance adjustment/T.OPN	MODE
[3]	F.CLS,S.Curve/Rough Servo and RF AGC/ F,T,RF AGC	(ITP)
-	SPDL 1X/2X switching (Double-speed compatibility only)	-
-	Error rate measurement	-
[6]	F.Mode switching/T.CLS/CRG,TR Jump switching	Auto/Manual switching

6.2 CHECKING THE GRATING AFTER CHANGING THE PICKUP UNIT

• **Note :**
The grating angle of the PU unit cannot be adjusted after the PU unit is changed. The PU unit in the CD mechanism module is adjusted on the production line to match the CD mechanism module and is thus the best adjusted PU unit for the CD mechanism module. Changing the PU unit is thus best considered as a last resort. However, if the PU unit must be changed, the grating should be checked using the procedure below.

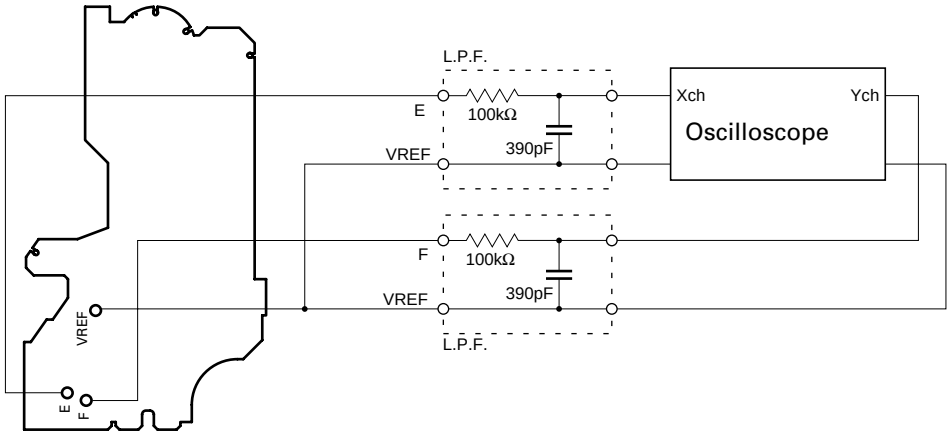
• **Purpose :**
To check that the grating is within an acceptable range when the PU unit is changed.

• **Symptoms of Mal-adjustment :**
If the grating is off by a large amount symptoms such as being unable to close tracking, being unable to perform track search operations, or taking a long time for track searching.

• **Method :**

• Measuring Equipment	• Oscilloscope, Two L.P.F.
• Measuring Points	• E, F, VREF
• Disc	• ABEX TCD-784
• Mode	• TEST MODE

CONTROL UNIT



• **Checking Procedure**
1. In test mode, load the disc and switch the 5V regulator on.
2. Using the ► and ◄ buttons, move the PU unit to the innermost track.
3. Press key **3** to close focus, the display should read "91". Press key **2** to implement the tracking balance adjustment the display should now read "81". Press key **3**. The display will change, returning to "81" on the fourth press.
4. As shown in the diagram above, monitor the LPF outputs using the oscilloscope and check that the phase difference is within 75° . Refer to the photographs supplied to determine the phase angle.
5. If the phase difference is determined to be greater than 75° try changing the PU unit to see if there is any improvement. If, after trying this a number of times, the grating angle does not become less than 75° then the mechanism should be judged to be at fault.

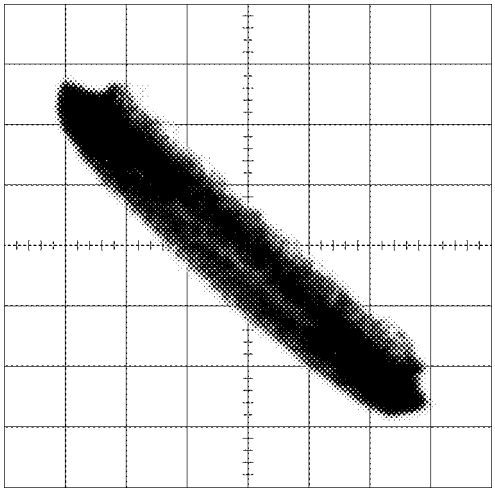
• **Note**
Because of eccentricity in the disc and a slight misalignment of the clamping center the grating waveform may be seen to "wobble" (the phase difference changes as the disc rotates). The angle specified above indicates the average angle.

• **Hint**
Reloading the disc changes the clamp position and may decrease the "wobble".

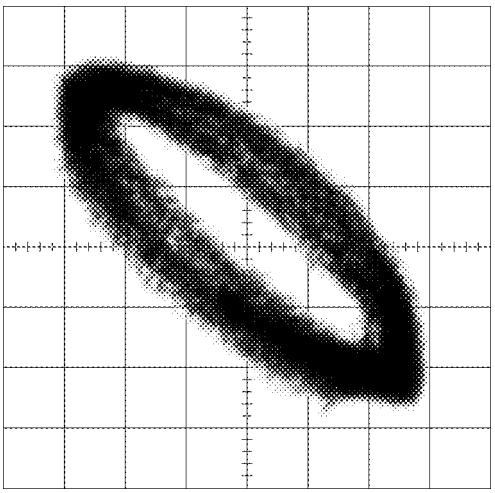
Grating waveform

Ech → Xch 20mV/div, AC
Fch → Ych 20mV/div, AC

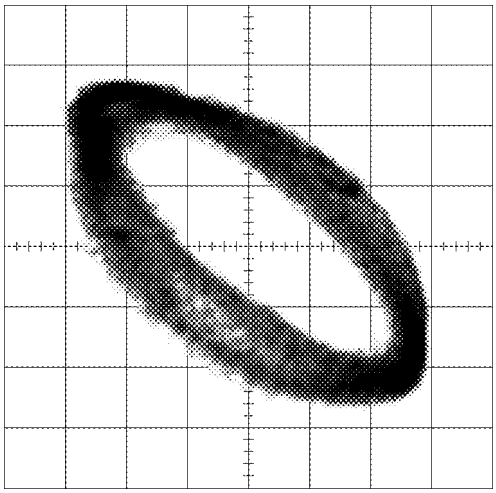
0°



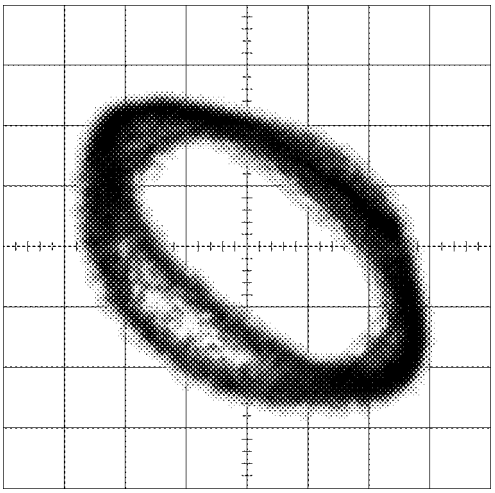
30°



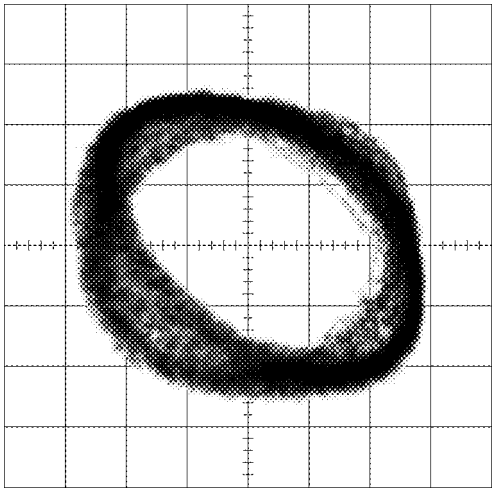
45°



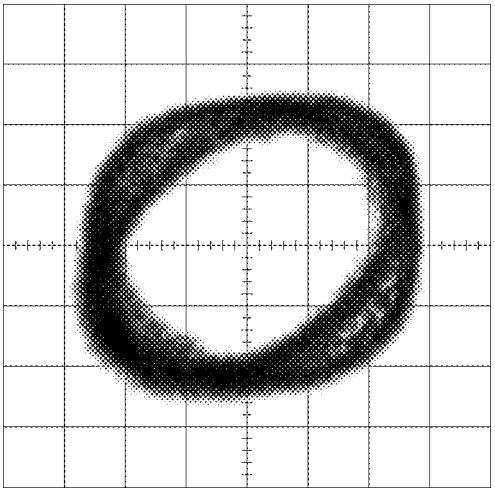
60°



75°



90°



7. GENERAL INFORMATION

7.1 DIAGNOSIS

7.1.1 TEST MODE

Introduction

The existing retail OEL models are equipped with a test mode, wherein all displays are displayed for the microcomputer's test mode. For the R670 series, however, the display test mode is expanded to include verifications for writing the flash memory since a flash memory is installed to accommodate the PC link kit.

Types of test modes

(1) All displays.
(2) Data address bus connectivity verification and Kanji ROM as well as flash ROM bus lines connectivity verification.
(3) Flash ROM writing verification
Data is written in the flash ROM, and verification is conducted to determine that the writing of the data is conducted properly.

Operation specification

1. Turning the test mode ON and OFF
The display test mode is turned on by performing a reset start while pressing the 1 and 3 keys. A once only beep tone will be emitted.
Display when the test mode is ON (first time only)

TEST

A TEST display image is generated by the internal processing of the microcomputer.
Press the RESET key or turn off the ACC, to turn the display test mode OFF.
2. Switching the display test mode
The type of display test mode can be switched by pressing the BAND key while the display test mode is ON. When a mode switch is performed, a beep tone will be emitted once.

All displays → Data address bus connectivity verification → Flash ROM writing verification → All displays

It takes about one to two seconds for the system to display the results of the flash ROM writing test.

Examples of data address bus connectivity verification results displays

ROM_DATA_BUS	OK	••• Verification of connectivity of Kanji ROM and data bus.
ROM_ADRS_BUS	OK	••• Verification of connectivity of Kanji ROM and address bus.
FLASH_DATA_BUS	OK	••• Verification of connectivity of flash memory and data bus.
FLASH_ADRS_BUS	OK	••• Verification of connectivity of flash memory and address bus.

When an error occurs during a connectivity verification, the “NG” will be displayed.

Examples of flash ROM writing verification displays

Writing data in FLASH memory!

TEMP region is deleted, data is written and data is read.

Examples of flash ROM writing verification results display

FLASH SETUP	OK	••• Verification of basic operations.
FLASH WRITING	OK	••• Verification of flash data writing operation.
FLASH WRITING DATA	OK	••• Verification of flash data reading operation.

If there is even a single error, the following types of messages will be displayed:
(1) An example of a basic operational error
FLASH SETUP NG
(2) An example of a flash data writing error display
FLASH WRITING NG
(3) An example of a flash data reading error display
FLASH WRITING DATA NG
(4) An example of a flash work deletion error display(verification process completed)
FLASH SECTOR ERASE NG

Cautions
Normal operations are enabled by pressing a key, etc., even if the system is engaged in conducting a display test mode. Please be aware that the display test mode is merely a mode wherein the display is switched by the BAND key, and not a special state of the system.

Important Issues:
If a data bus or an address bus error is encountered, during flash ROM verifications, DO NOT PERFORM FLASH ROM WRITING VERIFICATIONS. Please turn OFF the ACC (since data in any region can be deleted while a writing test is conducted).

Supplimentary Information
If "TEST" is not displayed while the test mode is turned ON:
There may be a problem with communications between the system and the grill, or there may be abnormalities with the OEL line or OEL itself (if a beep tone is emitted).

If the data or address bus verification yields an "NG" result:
Even if the "BUS NG" is displayed as a result of the data bus verification, it does not necessarily imply that there is an abnormality within the data bus.
If there is an abnormality with the address bus, the data of a wrong address will be read, resulting in data abnormality.

If the flash ROM verification yields an "NG" result:
The Flash ROM is not accepting the commands in a normal manner, or there is an abnormality with data deletion or writing operations.

The Flash ROM has a limited life. The guaranteed component life is 10,000 data rewrites. If the component reaches the end of its life, it appears that an electrostatic buildup will occur and no more "0" can be written in the flash memory.

7.1.2 TEST MODE (CD)

● Error Messages

If a CD is not operative or stopped during operation due to an error, the error mode is turned on and cause(s) of the error is indicated with a corresponding number. This arrangement is intended at reducing nonsense calls from the users and also for facilitating trouble analysis and repair work in servicing.

(1) Basic Indication Method

1) When SERRORM is selected for the CSMOD (CD mode area for the system), error codes are written to DMIN (minutes display area) and DSEC (seconds display area). The same data is written to DMIN and DSEC. DTNO remains in blank as before.

2) Head unit display examples

Depending on display capability of LCD used, display will vary as shown below. xx contains the error number.

8-digit display	6-digit display	4-digit display
ERROR–xx	ERR–xx	E–xx

(2) Error Code List

Code	Class	Displayed error code	Description of the code and potential cause(s)
10	Electricity	Carriage Home NG SERVO LSI Communication Error	CRG can't be moved to inner diameter. CRG can't be moved from inner diameter. → Failure on home switch or CRG move mechanism. Communication error between microcomputer and SERVO LSI.
11	Electricity	Focus Servo NG	Focusing not available. → Stains on rear side of disc or excessive vibrations on REWRITABLE.
12	Electricity	Spindle Lock NG Subcode NG	Spindle not locked. Sub-code is strange (not readable). → Failure on spindle, stains or damages on disc, or excessive vibrations. A disc not containing CD-R data is found. Turned over disc are found, though rarely. CD signal error.
17	Electricity	Setup NG	AGC protection doesn't work. Focus can be easily lost. → Damages or stains on disc, or excessive vibrations on REWRITABLE.
30	Electricity	Search Time Out	Failed to reach target address. → CRG tracking error or damages on disc.
44	Electricity	ALL Skip	Skip setting for all track. (CD-R/RW)
50	Mechanism	CD On Mech Error	Mechanical error during CD ON. → Defective loading motor, mechanical lock and mechanical sensor.
A0	System	Power Supply NG	Power (VD) is ground faulted. → Failure on SW transistor or power supply (failure on connector).

Remarks: Mechanical errors are not displayed (because a CD is turned off in these errors).

Unreadable TOC does not constitute an error. An intended operation continues in this case.

Upper digits of an error code are subdivided as shown below:

1x: Setup relevant errors, 3x: Search relevant errors, Ax: Other errors.

● New Test Mode

S-CD plays the same way as before.

If an error such as off focus, spindle unlocking, unreadable sub-code, or sound skipping occurs after setup, its cause and time occurred (in absolute time) are displayed.

During setup, operational status of the control software is displayed.

These displays and functions are prepared for enhancing aging in the servicing and efficiency of trouble analysis.

(1) Shifting to the New Test Mode

① Turn on the current test mode by starting the reset from the key.

② Select S-CD for the source through the specified procedure including use of the [SOURCE] key, and inserting the disc. Then, press the [Jump Mode Selector] key while maintaining the regulator turned off.

③ After the above operations, the new test mode remains on irrespective of whether the S-CD is turned on or off. You can reset the new test mode by turning on the reset start.

(2) Key Correspondence

Key	Test mode		New test mode	
	Regulator Off	Regulator On	In-play	Error Production
BAND	To regulator on	To regulator off	–	Time/Err.No. switching
►	–	FWD-Kick	FF/TR+	–
◄	–	REV-Kick	REV/TR-	–
1	–	Tracking Close	Scan	–
2	–	Tracking Open	Mode	–
3	–	Focus Close	–	–
–	–	Focus Open	–	–
–	–	Jump Off	–	–
6	To new test mode	Jump mode switching	Auto/Manu	–

Note: Eject and CD on/off is performed in the same procedure as that for the normal mode.

(3) Cause of Error and Error Code

Code	Class	Contents	Description and cause
40	Electricity	Off focus detected.	FOK goes low. → Damages/stains on disc, vibrations or failure on servo.
41	Electricity	Spindle unlocked.	LOCK = Low continued for 150 msec. → Damages/stains on disc, vibrations or failure on servo.
42	Electricity	Sub-code unreadable.	Sub-code was unreadable for 500 msec. → Damages/stains on disc, vibrations or failure on servo.
43	Electricity	Sound skipping detected.	Last address memory function was activated. → Damages/stains on disc, vibrations or failure on servo.

Note: Mechanical errors during aging are not displayed.

(4) Display of Operational Status during Setup

Status No.	Contents	Protective action
21	Focus search start	Focus search timeout.
22	Focus search 2	Focus search timeout.
23	Focus search 3	Focus search timeout.
24	Focus search 4	Focus search timeout.
25	Focus search(Setup protection)	Focus slips off.
26	Focus search(Fast recovery)	Focus slips off.
27	RF detection	Focus slips off.
28	Spindle rough servocontrol	Focus slips off.
29	Tracking balance adjustment start	Focus slips off.
30	Tracking balance adjustment 2	Focus slips off.
31	Tracking balance adjustment 3	Focus slips off.
32	Tracking close start(Spindle stationary servocontrol setting)	Focus slips off.
33	Tracking close 2	Focus slips off.
34	Tracking close 3	Focus slips off.
35	Focus/Tracking AGC start	Focus slips off.
36	Focus/Tracking AGC 2	Focus slips off.
37	Focus/Tracking AGC 3	Focus slips off.
38	Focus/Tracking AGC 4	Focus slips off.
39	Focus/Tracking AGC 5	Focus slips off.
40	Focus/Tracking AGC 6	Focus slips off.
41	Focus/Tracking AGC 7	Focus slips off.
42	Focus/Tracking AGC 8	Focus slips off.
43	FE bias start	Focus slips off.
44	FE bias 2	Focus slips off.
45	RF AGC start	Focus slips off.
46	RF AGC 2	Focus slips off.
47	Lock check start	Focus slips off.
48	Lock is being checked	Focus slips off.
49	Subcode check start	Focus slips off, spindle lock is not performed.
50	Subcode is being checked	Focus slips off, no subcode can be read.

(5) Display Examples

1) During Setup

8-digit display, 6-digit display	4-digit display(Auto setting)	4-digit display(Manual setting)
TNO. Min Sec	TNO.	Min Sec
11 11' 11"	11	11' 11"

2) During Operation (TOC read, TRK search, Play, FF and REV)

The same as in the normal mode.

3) When a Protection Error Occurred

(A) Error display ((A)←→(B), (C) : BAND key)

8-digit display	6-digit display	4-digit display
ERROR-xx	ERR-xx	E-xx

(B) Error occurrence timing display in track no. ((B)←→(C) : Auto/Manual key)

8-digit display, 6-digit display	4-digit display(Auto setting)
TNO. Min Sec	TNO.
10 40' 05"	10

(C) Error occurrence timing display in absolute time. ((B)←→(C) : Auto/Manual key)

8-digit display, 6-digit display	4-digit display(Manual setting)
TNO. Min Sec	Min Sec
10 40' 05"	40' 05"

7.1.3 DISASSEMBLY

● **Removing the Case (not shown)**

1. Remove the two screws and then Case.

● **Removing the CD Mechanism Module (Fig.1)**

1 Remove the four screws.

Disconnect the connector and then remove the CD Mechanism Module.

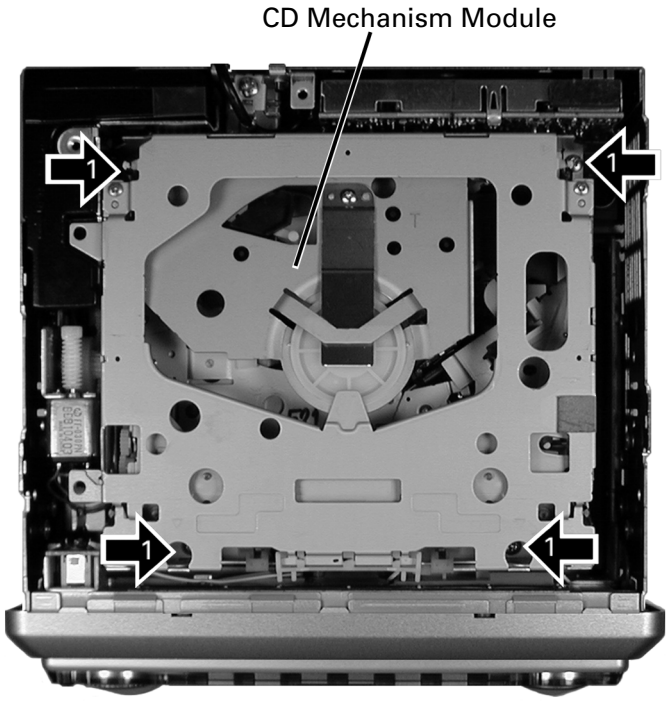


Fig.1

● **Removing the Detach Grille Assy (Fig.2)**

1 Remove the four screws.

Disconnect the connector and then remove the Detach Grille Assy.

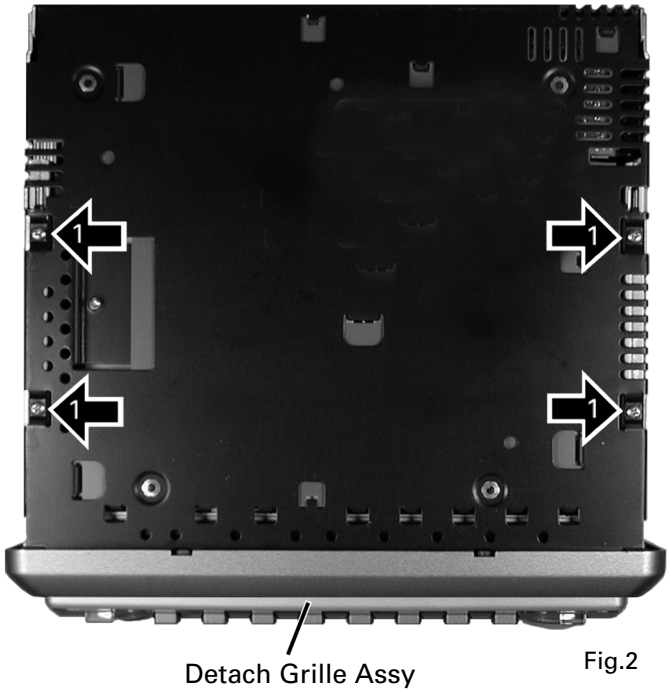


Fig.2

● Removing the Tuner Amp Unit (Fig.3)

1 Remove the three screws.

Insert the tips of a pair of pliers or something like that into the slits, and remove the Holder while pushing it with the tips.

2 Remove the screw.

3 Remove the screw.

4 Straight the tabs at four locations indicated.

5 Remove the screw and then remove the Tuner Amp Unit.

(Note)

Tighten the screw 5, after the screw 3 and putting the tab 4 in the different direction when assembling. The fastening torque of the screw 5 is (0.5-0.7N•m). Next, tighten the screw 1 after the screw 2. Finally put the tabs of the holder up, if they are bent.

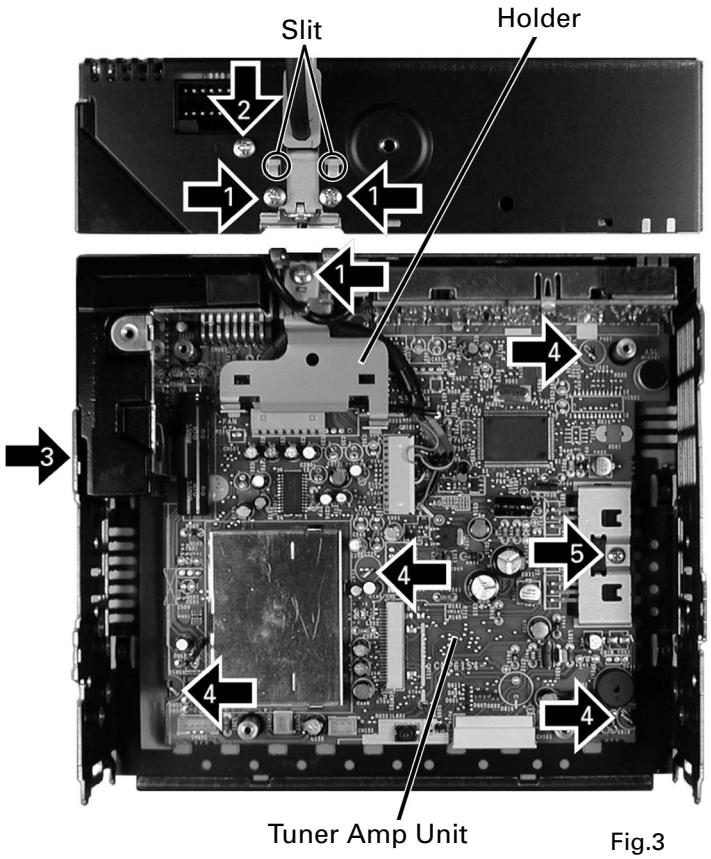


Fig.3

● Remove the DSP Unit

1. Remove the solder of three tabs indicated by arrows A.
2. Disconnect the connector and then remove the DSP Unit.
3. Remove the Upper Holder.
4. Remove the solder of tab indicated by arrow B.
5. Straight the four tabs indicated by arrows B and C, remove the Lower Holder.

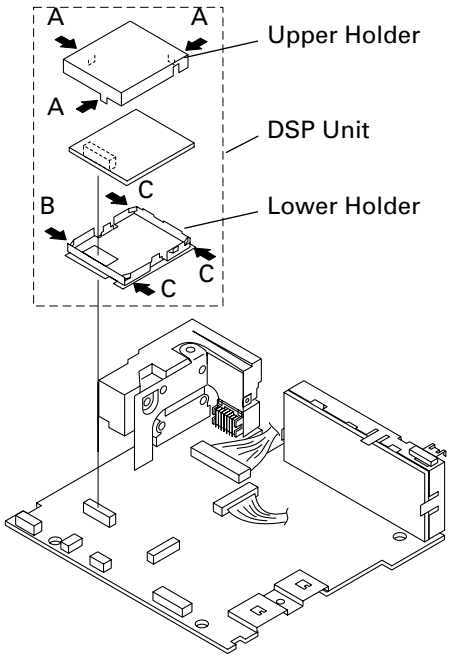
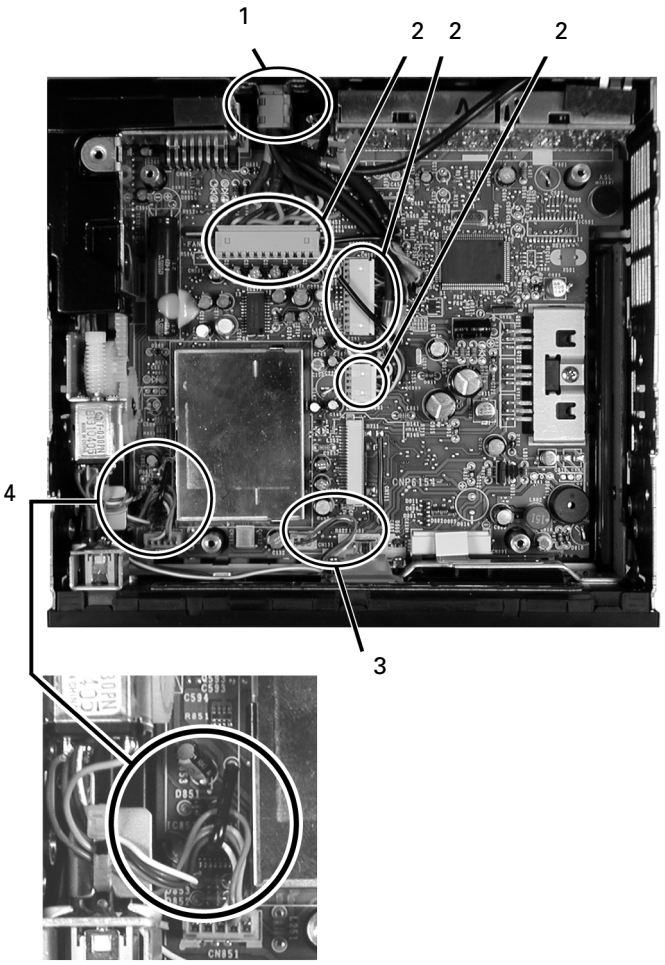


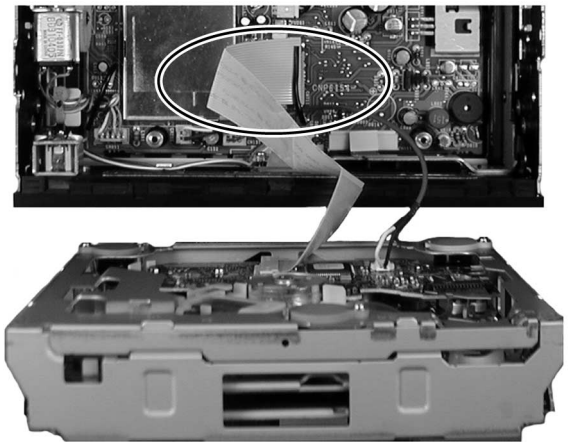
Fig.4

● Checkpoints for assembly

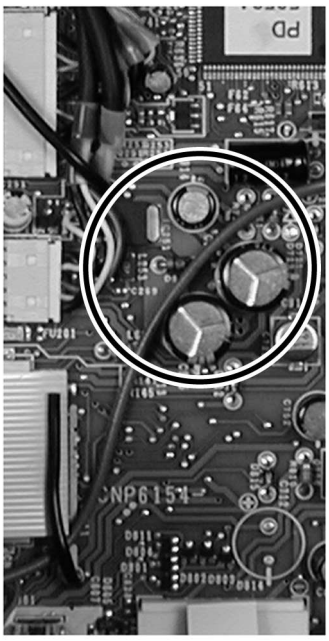
1. Insert the substrate while pushing the cord bush.
2. After the insertion, make sure not to remove the connector.
3. Put the cord lower than connectors and condensers.
4. Insert the cord after making it turn. And make sure to put a clumper on the substrate.



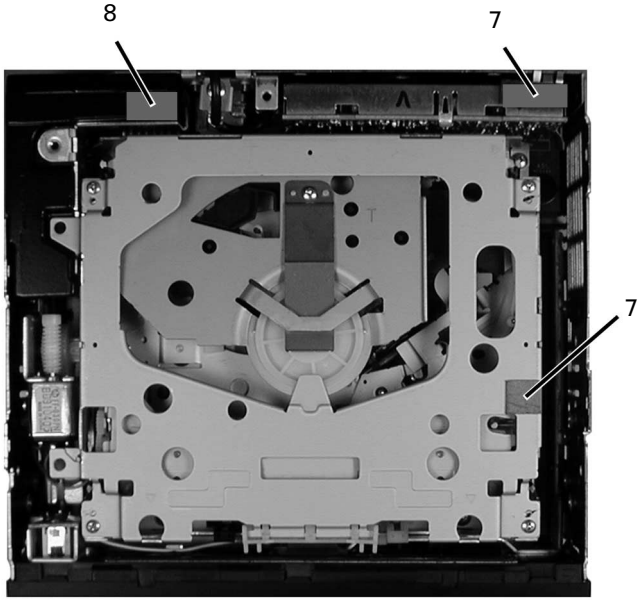
5. Set the flexible connector as shown in the figure when assembling the CD mechanical module.



6. Set the connector as shown in the figure when assembling the CD mechanical module.

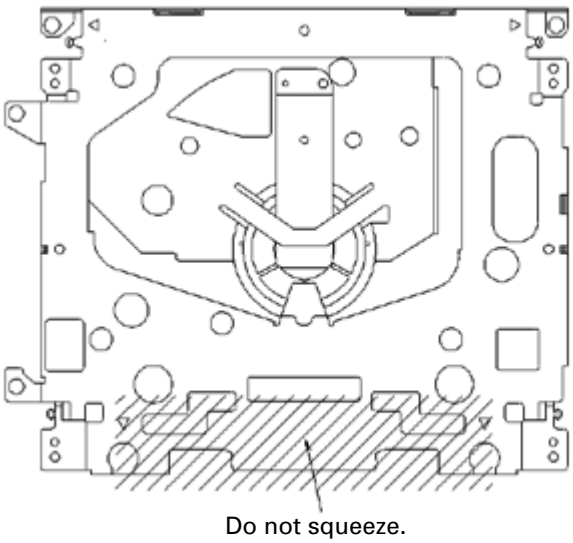


7. Paste the cushions and holder as shown in the figure, when exchanging the FM/AM tuner unit or the CD mechanical module.
8. Paste the cushions as shown in the figure when assembling.



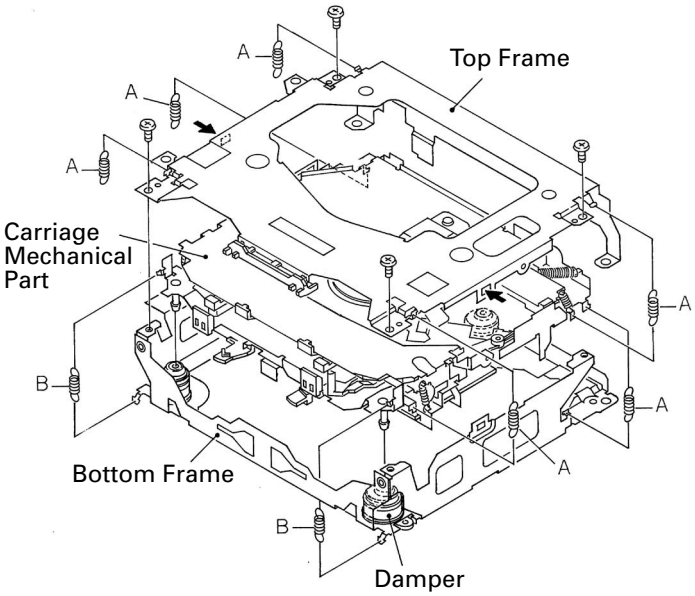
● How to hold the Mechanical Unit

1. Hold the top and bottom frame.
2. Do not squeeze top frame's front portion too tight, because it is fragile.



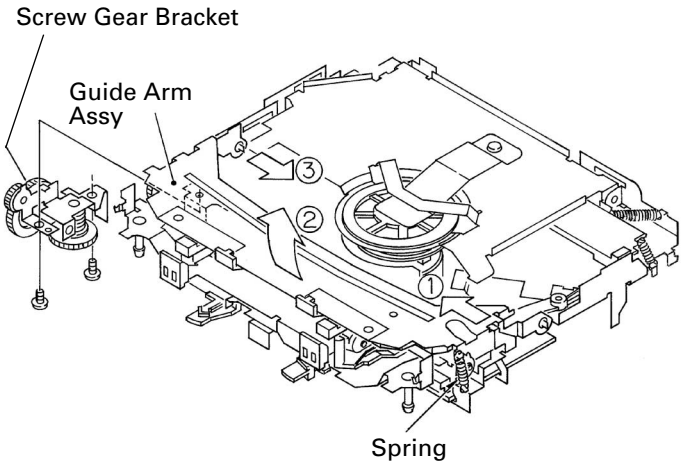
● How to remove the Top and Bottom Frame

1. When the disk is "clamp" state, unlock Spring A (6 pieces) and Spring B (2 pieces), and unscrew screws (4 pieces).
2. Unlock each 1 of pawl at the both side of the frame, then remove the top frame.
3. Remove the Carriage Mechanical part in such way that; you remove the mechanical part from 3 pieces of Damper while slowly pulling up the part.
4. Now, the top frame has been removed, and under this state, fix the genuine Connector again, and eject the disk.
   (Caution)
   When you reassemble the Carriage Mechanical part, apply a bit of alcohol to Dampers.



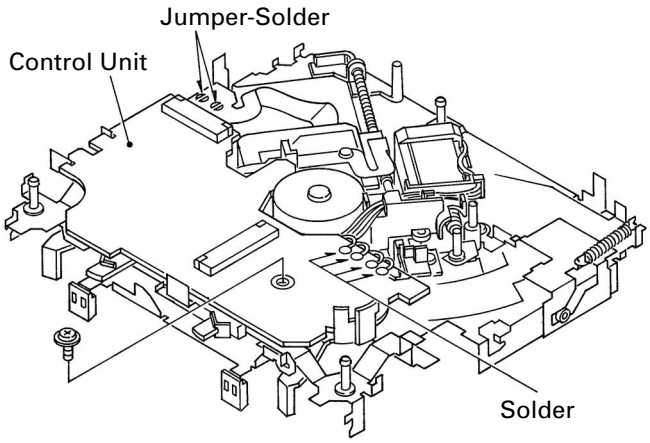
● How to remove the Guide Arm Assy

1. Unlock the spring (1 piece) at the right side of the assembly.
2. Unscrew screws (2 pieces), then remove the Screw Gear Bracket.
3. Shift the Guide Arm Assy to the left and slowly rotate it to the upper direction.
4. When the Guide Arm Assy rotates approximately 45 degree, shift the Assy to the right side direction and remove it.



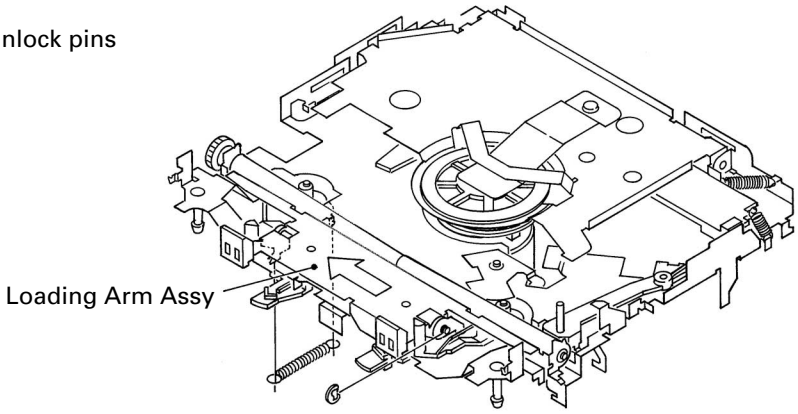
● How to remove the Control Unit

1. Give jumper-solder treatment to the Flexible Wire of the Pickup unit, then remove the wire from the Connector.
2. Remove all 4 points of solder-treatment on the Lead Wire. Also, unscrew the screw(1 piece).
3. Then, Remove the Control unit.
   (Caution)
   Be careful not to damage SW when you reassemble the Control Unit into the device.



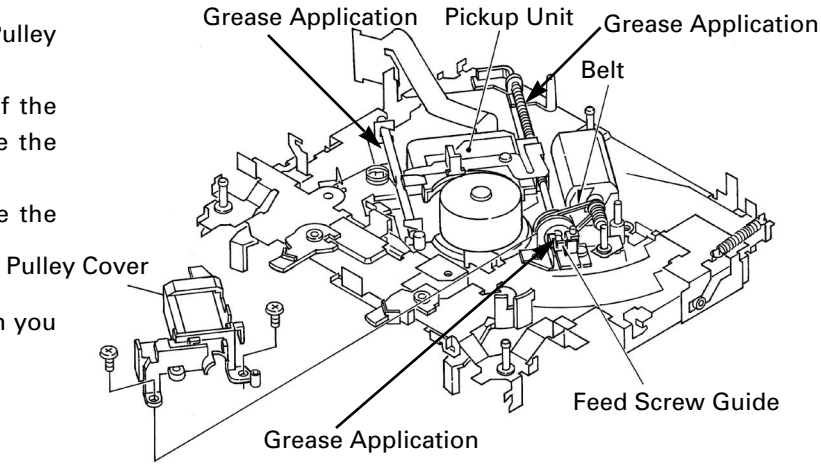
● How to remove the Loading Arm Assy

1. Unlock the spring (1 piece) and remove the E ring (1 piece) of the Fulcrum Shaft.
2. Shift the arm to the left side direction and unlock pins (2 pieces).

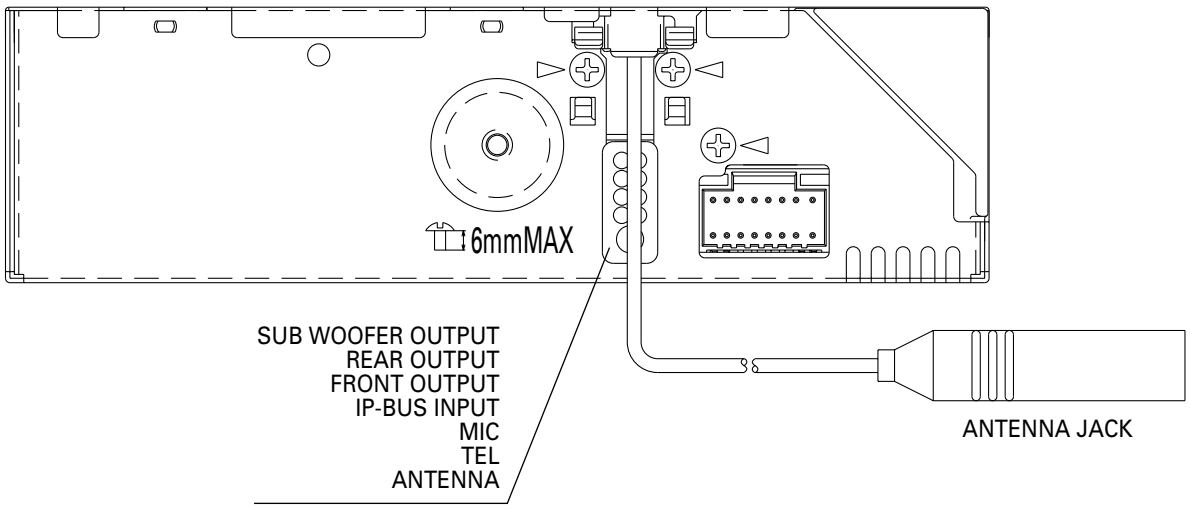


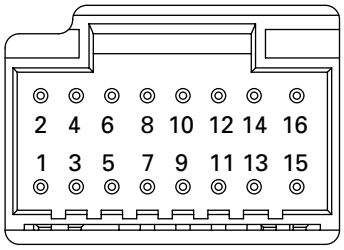
● How to remove the Pickup Unit

1. Unscrew 2 pieces of screws, then remove the Pulley Cover.
2. Remove the Feed Screw unit from the pawl of the Feed Screw Guide (The pawl is located inside the guide).
3. Remove the belt from the Pulley, then remove the Pickup unit.
   (Caution)
   Make sure not to stain the belt with grease when you fix the belt.



7.1.4 CONNECTOR FUNCTION DESCRIPTION





1	B.UP	9	RL-
2	GND	10	FL-
3	ILL	11	RL+
4	B.REM	12	FL+
5	ACC	13	RR-
6	NC	14	FR-
7	NC	15	RR+
8	MUTE	16	FR+

7.2 IC

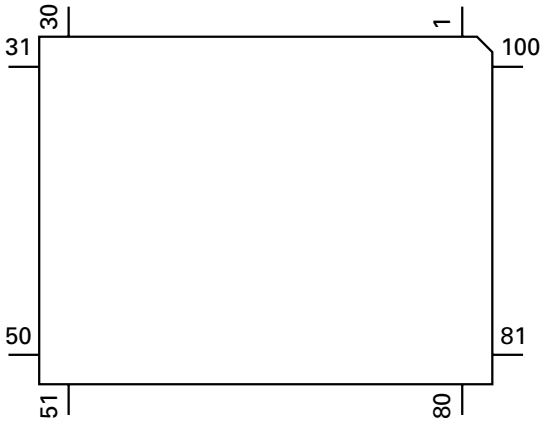
PD5650A	TC74VHC126FT	PD3428A
BA033FP	PML011A	TA2153FN
PAL006A	PD5657A	TC9495F2
PDG262A	PD6363A	BA5996FM
PD5654A	PD8080A	PE5193A

● **Pin Functions (PD5650A)**

Pin No.	Pin Name	I/O	Function and Operation
1	TUNPDO	O	PLL data output
2	TUNPCK	O	PLL clock output
3	TUNPCE	O	PLL chip enable output
4	TUNPCE2	O	PLL chip enable output2
5-7	NC		Not used
8	VSS1		External data BUS width select
9	VSS2		Processor mode select
10	MICSEN	I	Microphone sense input
11	TELIN	I	Cellular mute input
12	RESET	I	Reset input
13	OSC1	O	Crystal oscillating element connection pin
14	VSS3		GND
15	OSC2	I	Crystal oscillating element connection pin
16	VCC1		Power Supply
17	NMI		Not used
18,19	NC		Not used
20	$\overline{\text{BSENS}}$	I	Back up sense input
21	RX2	I	IP-BUS data input 2
22	IPPW	O	IP-BUS power supply control output
23	$\overline{\text{ISENS}}$	I	Illumination sense input
24	PEE	O	Beep tone output
25	NC		Not used
26	ASENBO	O	IP-BUS slave ACC sense output
27	MUTE	O	Mute output
28	NC		Not used
29	RX	I	IP-BUS data input
30	TX	O	IP-BUS data output
31	BSO	O	P-BUS data output
32	BSI	I	P-BUS data input
33	BSCK	I/O	P-BUS serial clock input / output
34	SWVDD	O	Grille:Chip enable output
35	DPDT	O	Grille:Display data output
36	KYDT	I	Grille:Key data input
37	SYSPW	O	System power supply control output
38	LOCL	O	TUNER:Local "L" output
39	PCL	O	Clock adjustment output
40	LOCH	O	TUNER:Local "H" output
41	NC		Not used
42	ST	I	TUNER:FM stereo input
43	SD	I	TUNER:SD input
44	DALMON	O	For consumption low-current output
45	CURREQ	O	Tuner voltage FIX output
46-55	NC		Not used
56	ILMPW	O	Illumination power supply control output
57	FLPILM	O	Inside of flap illumination output

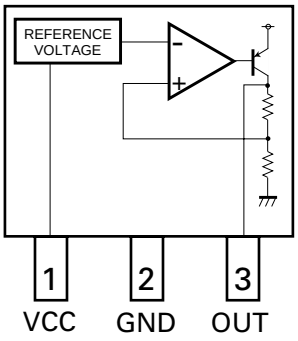
Pin No.	Pin Name	I/O	Function and Operation
58-61	NC		Not used
62	VCC3		Power supply(5V)
63	NC		Not used
64	VSS4		GND
65	NC		Not used
66	ROMDATA	I	ROM correction data input
67	BSRQ2	O	P-BUS communication request output
68	NC		Not used
69	BRXEN	I/O	P-BUS communication input / output
70	BRST	O	P-BUS reset output
71	BSRQ	I	P-BUS communication request input / output
72	$\overline{\text{DSENS}}$	I	Grille detach sense input
73	NC		Not used
74	$\overline{\text{ASENS}}$	I	ACC power sense input
75-77	NC		Not used
78	FLPOPN	O	Auto flap open output
79	FLPCLS	O	Auto flap close output
80	FLPPW	O	Auto flap motor driver ON/OFF output
81	FOPENSW	I	Auto flap open sense input
82	FCLSSW	I	Auto flap close sense input
83-88	NC		Not used
89	TESTIN	I	Test program input
90	HTELPW	O	TEL microphone control output
91	OELPW	O	OEL module power supply control output
92-95	NC		Not used
96	VSS5		A/D converter power supply
97	SL	I	Signal level input
98	VREF		A/D converter standard voltage
99	VCC4		A/D converter power supply
100	TUNPDI	I	PLL data input

*PD5650A

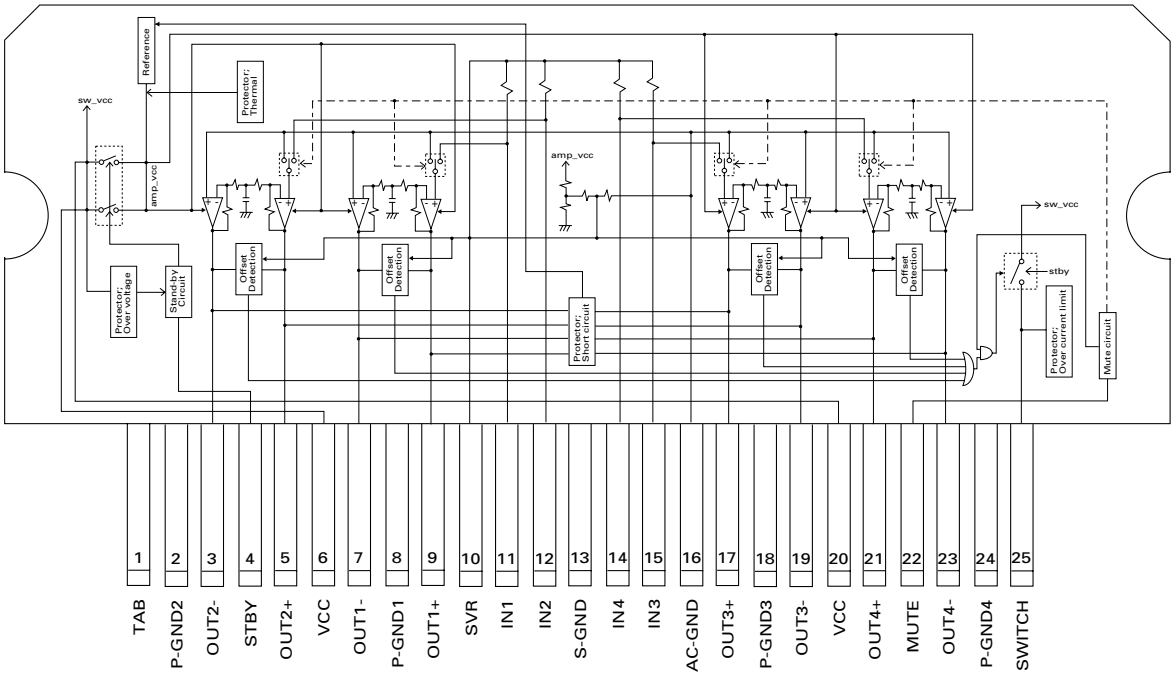


IC's marked by * are MOS type.
Be careful in handling them because they are very liable to be damaged by electrostatic induction.

BA033FP



PAL006A

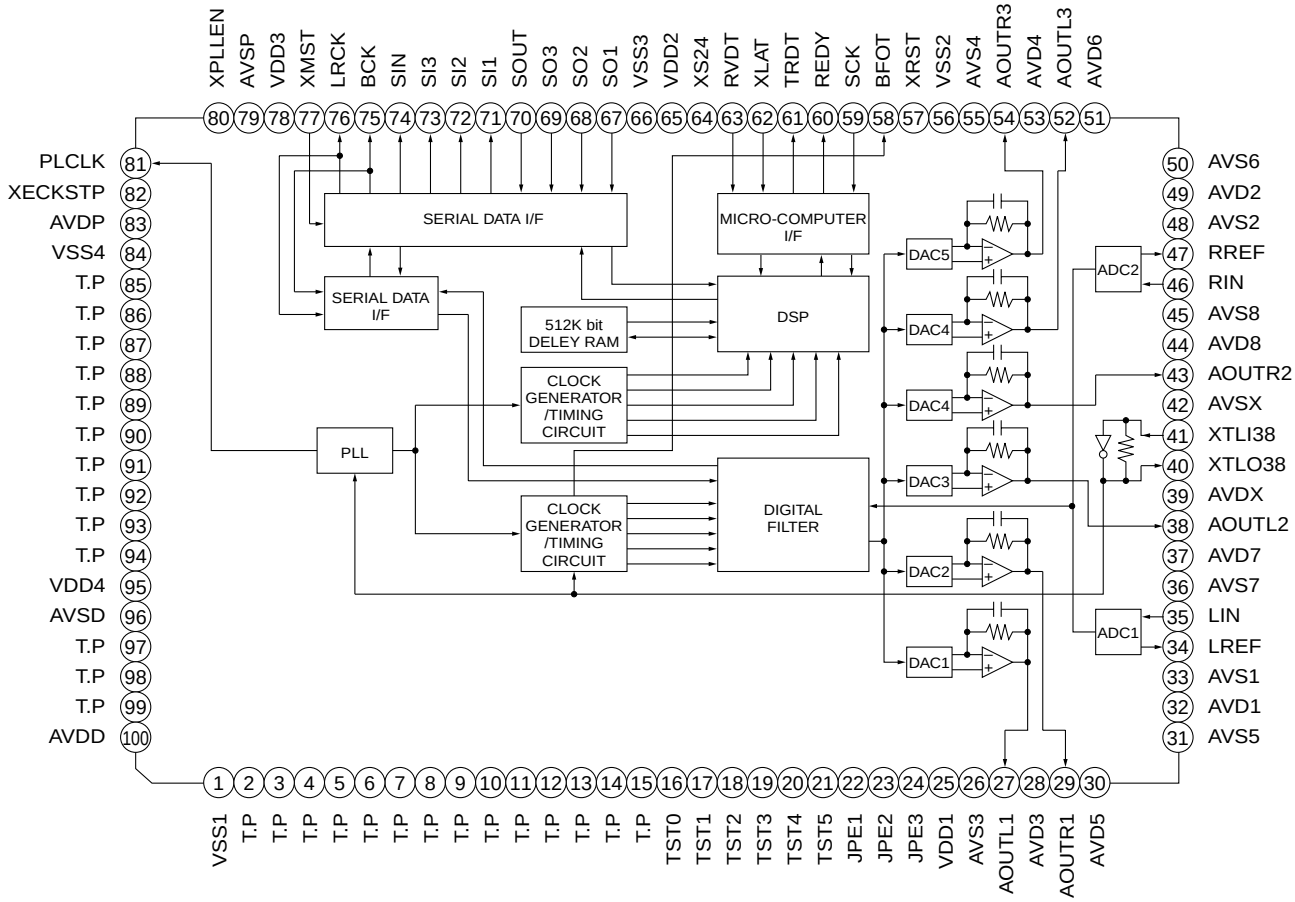


● **Pin Functions(PDG262A)**

Pin No.	Pin Name	I/O	Function and Operation
1	VSS1		Digital GND
2-15	T.P	I	Test input pin Normal:"L"
16-21	TST0-5	I	Test terminal Normal:"L"
22-24	JPE1-3	I	External condition jump terminal "H":Condition jump
25	VDD1		Digital GND
26	AVS3		DA converter1 GND
27	AOUTL1	O	DA converter1 Lch output
28	AVD3		DA converter1 power supply
29	AOUTR1	O	DA converter1 Rch output
30	AVD5		DA converter1 power supply
31	AVS5		DA converter1 GND
32	AVD1		AD converter Lch power supply
33	AVS1		AD converter Lch GND
34	LREF	O	Connect to Pass -con for AD converter
35	LIN	I	AD converter Lch analog input
36	AVS7		DA converter2 GND
37	AVD7		DA converter2 power supply
38	AOUTL2	O	DA converter2 Lch output
39	AVDX		Analog power supply for master clock
40	XTLO38	O	Crystal oscillator circuit output
41	XTLI38	I	Crystal oscillator circuit input
42	AVSX		Analog GND for master clock
43	AOUTR2	O	DA converter2 Rch output
44	AVD8		DA converter2 power supply
45	AVS8		DA converter2 GND
46	RIN	I	AD converter Rch analog input
47	RREF	O	Connect to capacitor for AD converter
48	AVS2		AD converter Rch GND
49	AVD2		AD converter Rch power supply
50	AVS6		DA converter3 GND
51	AVD6		DA converter3 power supply
52	AOUTL3	O	DA converter3 Lch output
53	AVD4		DA converter3 power supply
54	AOUTR3	O	DA converter3 Rch output
55	AVS4		DA converter3 GND
56	VSS2		Digital GND
57	XRST	I	System reset input "L":Reset
58	BFOT	O	Master clock output
59	SCK	I	Shift clock input of micro computer interface
60	REDY	O	Forward permission signal output "L":forward prohibition
61	TRDT	O	Data output of micro computer interface
62	XLAT	I	Latch input of micro computer interface
63	RVDT	I	Data input of micro computer interface
64	XS24	I	24bit/32bit slot select for serial data "L":24bit slot[available only slave mode]
65	VDD2		Digital power supply
66	VSS3		Digital GND
67-69	SO1-3	O	Serial data output1-3
70	SOUT	O	Serial data output
71-73	SI1-3	I	Serial data input1-3
74	SIN	I	Serial data input
75	BCK	I/O	Serial bit forward clock of serial input/output data
76	LRCK	I/O	Sampling frequency clock of serial input/output data
77	XMST	I	Master/Slave mode select input for BCK,LRCK "L":master mode
78	VDD3		Digital GND
79	AVSP		PLL GND
80	XPLLEN	I	PLL Enable Normal:"L"

Pin No.	Pin Name	I/O	Function and Operation
81	PLCLK	O	PLL clock output
82	XECKSTP	I	PLL clock output control "L":PLCLK output "L" "H":PLL clock output
83	AVDP		PLL power supply
84	VSS4		Digital GND
85-94	T.P	I	Test input pin Normal:"L"
95	VDD4		Digital power supply
96	AVSD		DRAM GND
97-99	T.P	I	Test input pin Normal:"L"
100	AVDD		DRAM power supply

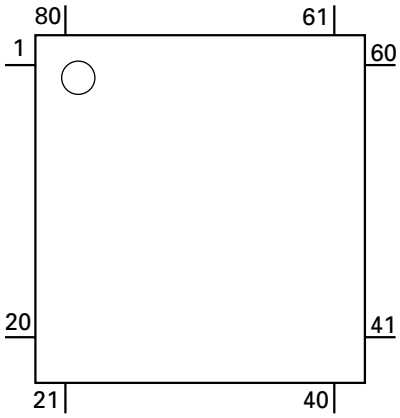
PDG262A



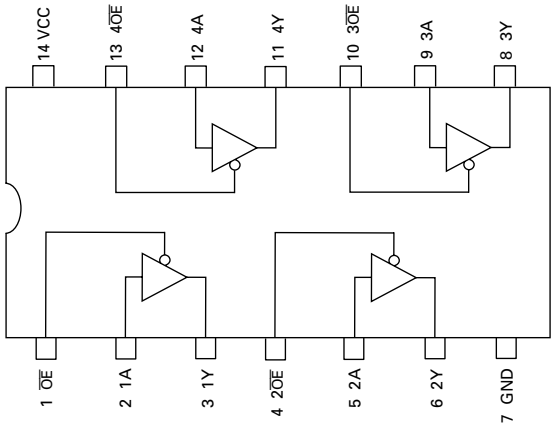
● **Pin Functions (PD5654A)**

Pin No.	Pin Name	I/O	Function and Operation
1,2	NC		Not used
3	VST	O	Strobe pulse output for electronic volume
4	VDT	O	Data output for electronic volume
5	VCK	O	Clock output for electronic volume
6	CNVSS		CNVss
7	MCKRQ	I	Master clock request input
8	MUTERQ	O	Mute output
9	RESET	I	Reset input
10	XO	O	System clock output
11	VSS		GND
12	XI	I	System clock input
13	VDD		Power supply
14	NMI		Not used
15	BMUTEIN	I	Digital source clock error input
16	NC		Not used
17	BRST	I	P-BUS reset input
18	AQTEST	I	AEQ estimation mode start request
19	MUTEIN	I	System mute input
20-23	NC		Not used
24	DSPOUT	O	DSP serial data output
25	DSPIN	I	DSP serial data input
26	DSPCK	O	DSP serial clock output
27	NC		Not used
28	BSO	O	P-BUS serial data output
29	BSI	I	P-BUS serial data input
30	BSCK	I/O	P-BUS serial clock input/output
31	NC		Not used
32	BSRQ	I/O	P-BUS service request output
33	BRXEN	I/O	P-BUS reception enable input/output
34-38	NC		Not used
39	TESTIN	I	Test program mode input
40	DSPPW	O	DSP power supply output
41	NC		Not used
42	MICSENS	I	MIC sense input
43	DSENS	I	Detach sense input
44-49	NC		Not used
50	ROTB	I	Rotary volume input B
51	ROTA	I	Rotary volume input A
52-58	NC		Not used
59	MODEL	I	Model select input
60	DSPRST	O	DSP reset control output
61	MCKOUT	O	Master clock output
62	NC		Not used
63	DSPMS	O	SONY DSP master/slave select output
64	DSPLAT	O	SONY DSP latch output
65	DSPRDY	I	SONY DSP I/F ready/busy input
66	EMPHIN	I	Emphasis data input
67-73	NC		Not used
74	NOISE	I	ASL noise input
75	AVSS		A/D converter GND
76	NC		Not used
77	VREF		A/D converter reference voltage
78	VDD		Power supply
79,80	NC		Not used

*PD5654A



TC74VHC126FT



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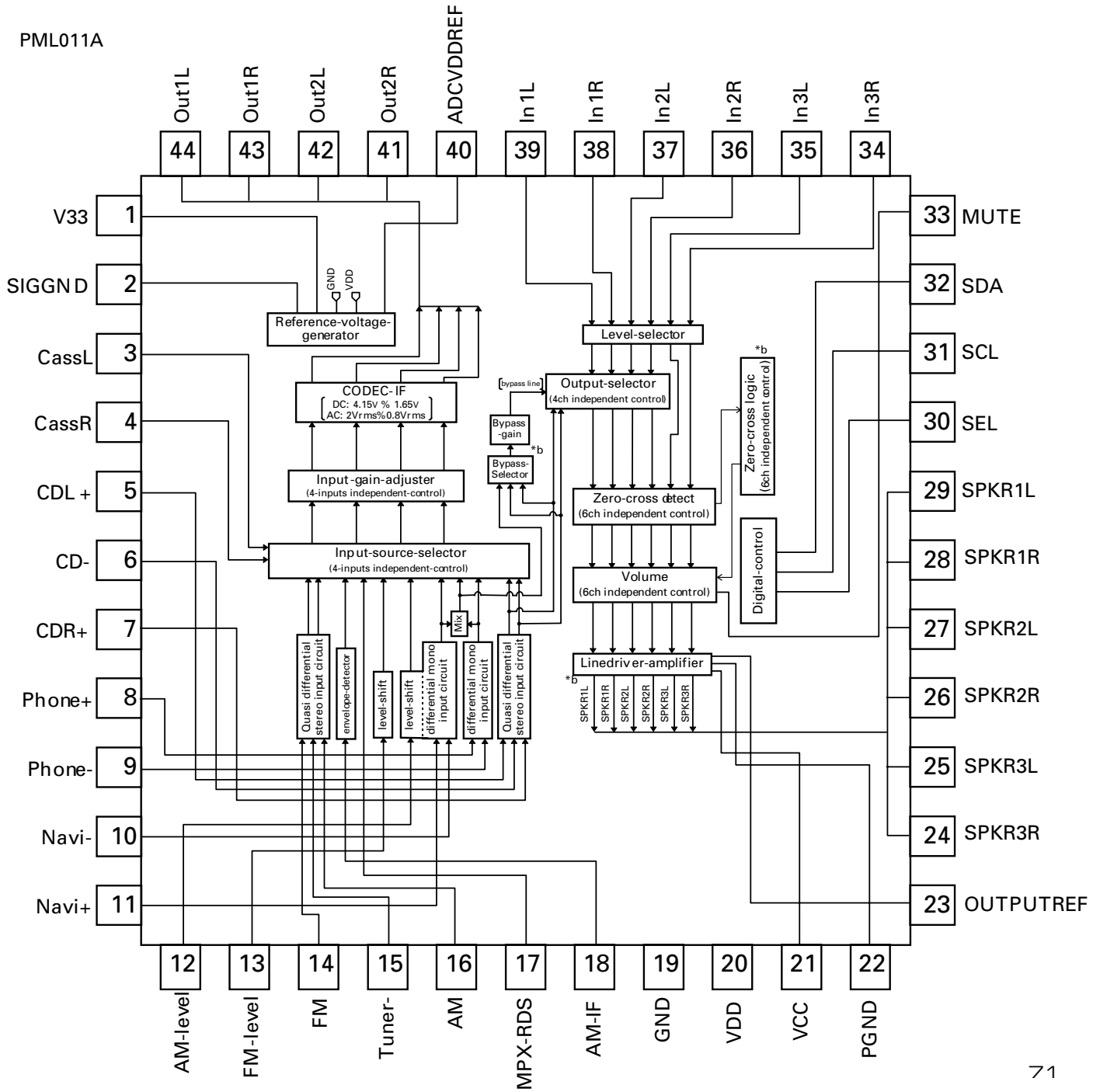
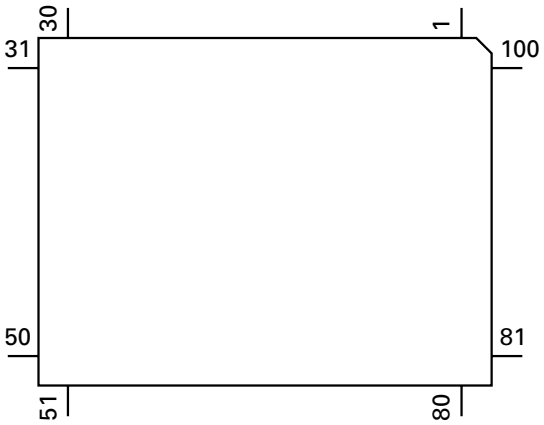


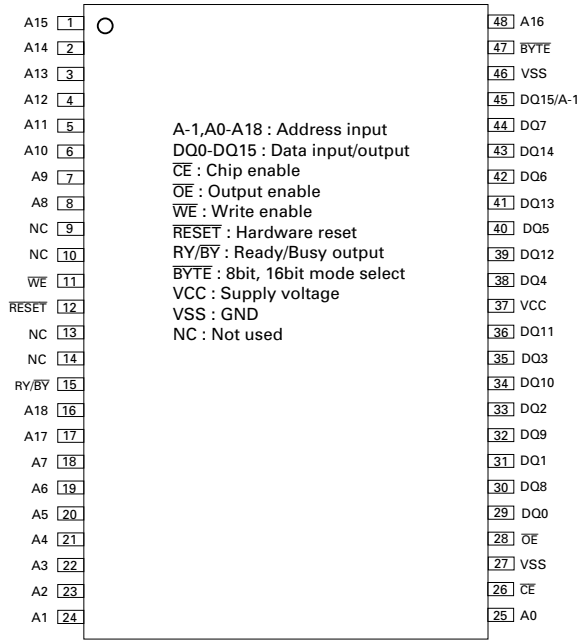
● **Pin Functions (PD5657A)**

Pin No.	Pin Name	I/O	Function and Operation
1	NC		Not used
2	BSCK	O	ROM correction clock output
3	CS	O	ROM correction chip select output
4-6	NC		Not used
7	REMin	I	Remote control reception input
8	BYTE	I	External data BUS width select input
9	CNVSS		GND
10,11	NC		Not used
12	RESET	I	Reset input
13	XOUT	O	Crystal oscillating element connection pin
14	VSS1		GND
15	XIN	I	Crystal oscillating element connection pin
16	VCC1		VDD
17	NMI	I	NMI input
18-26	NC		Not used
27-30	KS3-0	I/O	Key strobe input / output 3-0
31	KYDT	O	Key data output
32	DPDT	I	Display data input
33-37	NC		Not used
38	FLBUSY	I	Flush memory ready / busy
39	RDY	I	OEL driver ready input
40	NC		Not used
41	HOLD		VDD pull up
42	NC		Not used
43	BCLK	O	OEL controller BCLK output
44	RD	O	RD pin
45	NC		Not used
46	WR	O	WR pin
47,48	CS0,1	O	Chip select input 0,1
49-61	A21-9	O	Address bus Output 21-9
62	VCC2		VDD
63	A8	O	Address bus Output 8
64	VSS2		GND
65-71	A7-1	O	Address bus Output 7-1
72	NC		Not used
73-88	D15-0	I/O	Data bus input/output 15-0
89	NC		Not used
90	OELON	O	OEL controller pin
91	STBY	O	Flash memory stand by output
92	FL12ON	O	Flash memory protect output
93-95	KD3-1	I	Key data input 3-1
96	AVSS		GND
97	KD0	I	Key data input 0
98	VREF		GND
99	VCC3		VDD
100	BSDATA	I/O	ROM correction data input / output

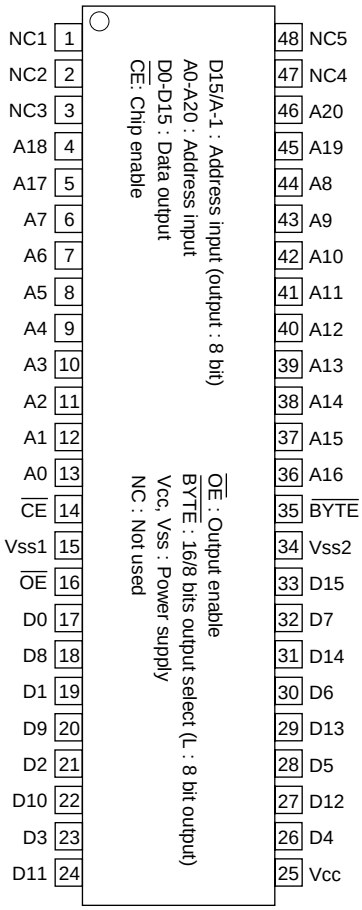
*PD5657A



PD6363A



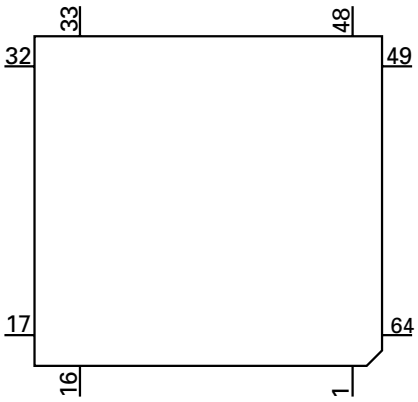
PD8080A



● **Pin Functions (PD3428A)**

Pin No.	Pin Name	I/O	Function and Operation
1-9	DB7-15	I/O	Data bus input / output
10	GND		GND
11	XIN		Crystal oscillating element connection pin
12	XOUT		Crystal oscillating element connection pin
13	VCC5		5V power supply
14	CKSEL	I	System clock select input
15	IR	I	Instruction register selection input pin
16	CS1	I	CPU CS1 input pin
17	CS0B	I	CPU CS0B input pin
18	WRB	I	CPU write strove input pin
19	RDB	I	CPU read strove input pin
20	BCLK	I	CPU bus clock input pin
21	GND		GND
22	RDYB	O	Ready signal output pin
23	CSOUT	O	Outside chip select output pin
24	CKD	O	Serial data forward clock output pin
25	CKA	O	The anode drive clock output pin
26	VCC5		5V power supply
27	LS	O	The same period line signal output pin
28,29	ADL0,1	O	The anode serial data output pin
30,31	ADR0,1	O	The anode serial data output pin
32	CDL	O	The cathode serial data output pin
33	CDR	O	The cathode serial data output pin
34-37	NC		Not used
38,39	VCC3		3V power supply
40	NC		Not used
41,42	GND		GND
43	TESTRAM		Not used
44	TESTSEL0		Not used
45	TESTSEL1		Not used
46	SCANSEL		Not used
47	OBKSEL		Not used
48-54	NC		Not used
55	RB	I	Reset input pin
56	GND		GND
57	DB0	I/O	Data bus input / output
58	VCC5		5V power supply
59-64	DB1-6	I/O	Data bus input / output

*PD3428A



● **Pin Functions(TA2153FN)**

Pin No.	Pin Name	I/O	Function and Operation
1	VCC		Power supply voltage terminal
2	RFGC	I	RF amplitude adjustment control signal terminal
3	GMAD	I	AGC amplifier frequency characteristic adjustment terminal
4	FNI	I	Main beam amplifier input terminal
5	FPI	I	Main beam amplifier input terminal
6	TPI	I	Sub beam amplifier input terminal
7	TNI	I	Sub beam amplifier input terminal
8	MDI	O	Monitor photodiode amplifier input terminal
9	LDO	I	Laser diode amplifier output terminal
10	SEL	I	APC circuit ON/OFF signal, LDO terminal control input terminal and bottom and peak detection frequency switching terminals
11	TEB	I	Tracking error balance adjustment signal input terminal
12	2VRO	O	Reference voltage (2VRO) output terminal
13	TEN	I	Tracking error signal generation amplifier reverse phase input terminal
14	TEO	O	Tracking error signal generation amplifier output terminal
15	SBAD	O	Sub beam addition signal output terminal
16	FEO	O	Focus error signal generation amplifier output terminal
17	FEN	I	Focus error signal generation amplifier reverse phase input terminal
18	SEB	I	RFRP generation circuit mode switching terminal
19	VRO	O	Reference voltage (VREF) output terminal
20	RFRP	O	Signal generation amplifier output terminal for track count
21	BTC	I	Bottom detection time constant adjustment terminal for RFCT signal generation
22	RFCT	O	RFRP signal center level output terminal
23	PKC	I	Peak detection time constant adjustment signal for RFCT signal generation
24	RFRPIN	I	Signal generation amplifier input terminal for track count
25	RFGO	O	RF signal amplitude adjustment amplifier output terminal
26	GVSW	I	AGC, FE or TE amplifier gain switching terminal
27	AGCIN	I	RF signal amplitude adjustment amplifier input terminal
28	RFO	O	RF signal generation amplifier output terminal
29	GND	I	GND terminal
30	RFN2	I	RF signal generation amplifier input terminal

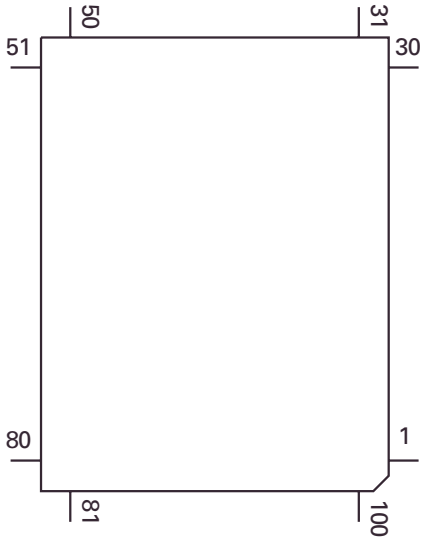
TA2153FN

● **Pin Functions(TC9495F2)**

Pin No.	Pin Name	I/O	Function and Operation
1	TESTO		Test mode terminal
2	$\overline{HSO}$	O	Replay speed flag output terminal
3	$\overline{UHSO}$	O	Replay speed flag output terminal
4	EMPH	O	Emphasis flag output terminal for sub code Q data
5	LRCK	O	Channel clock (44.1 kHz) output terminal
6	VSS		Digital ground terminal
7	BCK	O	Bit clock output terminal
8	AOUT	O	Digital audio data output terminal
9	DOUT	O	Digital out output terminal
10	MBOV	O	Buffer memory over signal output terminal
11	IPF	O	Correction flag output terminal
12	SBOK	O	CRCC decision result output for sub code Q data
13	CLCK	I/O	Clock input/output terminal for sub code P-W data read
14	VDD		Digital + power supply terminal (5 V)
15	VSS		Digital ground terminal
16	DATA	O	Sub code P-W data output terminal
17	SFSY	O	Replay-system frame sync signal output terminal
18	SBSY	O	Sub code block sync output terminal
19	SPCK	O	Clock for processor status signal read
20	SPDA	O	Processor status signal output terminal
21	COFS	O	Correction-system frame clock (7.35 kHz) output terminal
22	MONIT	O	LSI internal signal output terminal
23	VDD		Digital + power supply terminal (5 V)
24	TESIO0	I	Test input/output terminal
25	P2VREF		PLL-system only 2VREF terminal
26	HSSW	O	The VREF voltage is reached for double or quad speed.
27	ZDET	O	One-bit DAC zero detection flag output terminal
28	PDO	O	Phase error signal issue between the EFM and PLCK signals
29	TMAXS	O	TMAX detection result output terminal
30	TAMX	O	TMAX detection result output terminal
31	LPFN	I	Reverse input terminal of amplifier for lowpass filter
32	LPFO	O	Output terminal of amplifier for lowpass filter
33	PVREF		PLL-system only VREF terminal
34	VCOREF	I	VCO center frequency reference level terminal
35	VCOF	O	Filter terminal for VCO
36	AVSS		Analog-system ground terminal
37	SLCO	O	Output terminal of DAC for data slice level generation
38	RFI	I	RF signal input terminal
39	AVDD		Analog-system power supply terminal (5 V)
40	RFCT	I	RFRP signal center level input terminal
41	RFZI	I	Input terminal for RFRP signal zero cross
42	RFRP	I	RF ripple signal input terminal
43	FEI	I	Focus error signal input terminal
44	SBAD	I	Sub beam addition signal input terminal
45	TSIN	I	Test input terminal
46	TEI	I	Tracking error input terminal
47	TEZI	I	Input terminal for tracking error or zero cross
48	FOO	O	Focus equalizer output terminal
49	TRO	O	Tracking equalizer output terminal
50	VREF		Analog reference power supply terminal
51	RFGC	O	RF amplitude adjustment control signal output terminal
52	TEBC	O	Tracking balance control signal output terminal
53	FMO	O	Feed equalizer output terminal
54	FVO	O	Speed error signal or feed search EQ output
55	DMO	O	Disc equalizer output terminal
56	2VREF		Analog reference power supply terminal
57	SEL	O	APC circuit ON/OFF signal output terminal

Pin No.	Pin Name	I/O	Function and Operation
58-61	FLGA-D	O	External flag output terminal for internal signal monitor
62	VDD		Digital + power supply terminal (5 V)
63	VSS		Digital ground terminal
64	IO0	O	RF amplifier gain switching terminal
65	IO1	O	Not used
66	IO2	I	HOME detection switch input terminal
67	IO3	O	FocusDrv and signal output terminal
68	$\overline{\text{DMOUT}}$	I	Field equalizer PWM output terminal for IO0 and IO1 Disc equalizer PWM output terminal for IO2 and IO3
69	$\overline{\text{CKSE}}$	I	Usually open
70	$\overline{\text{DACT}}$	I	DAC test mode terminal
71	TESIN	I	Test input terminal
72	TESIO1	I	Test input/output terminal
73	VSS		Digital ground terminal
74	PXI	I	DPS-system clock oscillator circuit input terminal
75	PXO	O	DPS-system clock oscillator circuit output terminal
76	VDD		Digital + power supply terminal (5 V)
77	XVSS		Ground terminal for system clock oscillator circuit
78	XI	I	System clock oscillator circuit input terminal
79	XO	O	System clock oscillator circuit output terminal
80	XVDD		For system clock oscillator circuit + power supply terminal
81	DVSR		R channel D/A converting unit power supply terminal
82	RO	O	R channel data forward rotation output terminal
83	DVDD		D/A converting unit power supply terminal (5 V)
84	DVR		Reference voltage terminal
85	LO	O	L channel forward rotation output terminal
86	DVSL		L channel D/A converting unit power supply terminal
87-89	TEST1-3	I	Test mode terminal
90-93	BUS0-3	I/O	Data input/output terminal for microcomputer interface
94	VDD		Digital + power supply terminal (5 V)
95	VSS		Digital ground terminal
96	BUCK	I	Clock terminal for microcomputer interface
97	$\overline{\text{CEE}}$	I	Chip enable signal for microcomputer interface
98	TEST4	I	Test mode terminal
99	$\overline{\text{TSMOD}}$	I	Test mode terminal
100	$\overline{\text{RST}}$	I	Reset signal input terminal

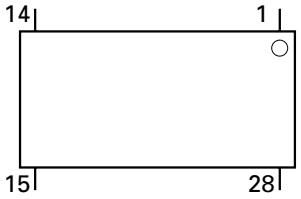
*TC9495F2



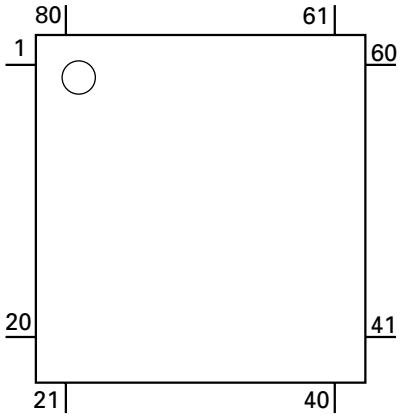
● **Pin Functions(BA5996FM)**

Pin No.	Pin Name	Function and Operation
1	VR	Input pin for reference voltage
2	OPIN2(+)	Input pin for non-inverting input for CH2 preamplifier
3	OPIN2(-)	Input pin for inverting input for CH2 preamplifier
4	OPOUT2	Output pin for CH2 preamplifier
5	OPIN1(+)	Input pin for non-inverting input for CH1 preamplifier
6	OPIN1(-)	Input pin for inverting input from CH1 preamplifier
7	OPOUT1	Output pin for CH1 preamplifier
8	GND	Ground pin
9	MUTE	Mute control pin
10	POWVCC1	Power supply pin for CH1, CH2, and CH3 at "Power" stage
11	VO1(-)	Driver CH1 - Negative output
12	VO1(+)	Driver CH2 - Positive output
13	VO2(-)	Driver CH2 - Negative output
14	VO2(+)	Driver CH2 - Positive output
15	VO3(+)	Driver CH2 - Positive output
16	VO3(-)	Driver CH2 - Negative output
17	VO4(+)	Driver CH4 - Positive output
18	VO4(-)	Driver CH4 - Negative output
19	POWVCC2	Power supply pin for CH4 at "Power" stage
20	GND	Ground pin
21	CNT	Control pin
22	LDIN	Loading input
23	OPOUTSL	Output pin for preamplifier for thread
24	OPINSL	Input pin for preamplifier for thread
25	OPOUT3	CH3 preamplifier output pin
26	OPIN3(-)	Input pin for inverting input for CH3 preamplifier
27	OPIN3(+)	Input pin for non-inverting input for CH3 preamplifier
28	PREVCC	PreVcc

BA5996FM



*PE5193A



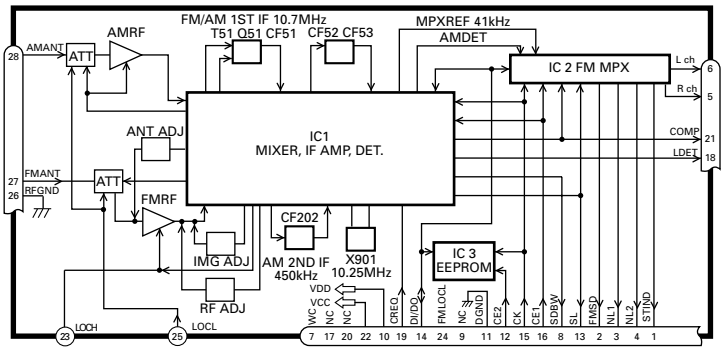
● **Pin Functions(PE5193A)**

Pin No.	Pin Name	I/O	Format	Function and Operation
1	$\overline{\text{BSCK}}$	I/O	/C	P-Bus serial clock input/output
2	BDATA	I/O	/C	P-Bus serial data input/output
3	CONT	O	C	Servo driver power supply control output
4	CLCONT	O	C	Driver input switching output
5	LOEJ	O	C	Load/Eject direction switching output
6	$\overline{\text{HOME}}$	I		Carriage home detection SW input
7	$\overline{\text{RESET}}$	I		System reset input

Pin No.	Pin Name	I/O	Format	Function and Operation
8	VDD			Power supply(+5V)
9	X2			Main clock radiator(25MHz)connection
10	X1	I		Main clock radiator(25MHz)connection
11	VSS			GND
12-14	CBANK0-2	O	C	Compression IC bank switching output 0-2
15	$\overline{\text{CRST}}$	O	C	Compression IC reset output
16-21	NC			Not used(Open)
22	DSET	O	C	Disc set indicator lighting output
23,24	NC			Not used(Open)
25	DSPMUTE	O	C	DSP mute output
26-28	NC			Not used(Open)
29	BRXEN	I/O	/C	Input/output by which P-Bus can be received
30	NC			Not used(Open)
31	CD5VON	O	C	CD +5V power supply control output
32	CDMUTE	O	C	CD mute control output
33	NC			Not used(Open)
34	$\overline{\text{EMPH}}$	O	C	Emphasis information output
35	NC			Not used(Open)
36	$\overline{\text{XRST}}$	O	C	CD LSI reset output
37	NC			Not used(Open)
38	XCE	O	C	CD LSI chip enable output
39	$\overline{\text{XPCK}}$	O	C	CD LSI clock output
40-43	XPIO3-0	I/O	/C	CD LSI data input/output
44	NC			Not used(Open)
45	VSS			GND
46	NC			VSS connection
47	NC			Not used(Open)
48	VDCONT	O	C	VD power supply control output
49	NC			Not used(Open)
50	$\overline{\text{CSENS}}$	I		Flap close sense input
51	NC			Not used(Open)
52	$\overline{\text{BSRQ}}$	O	C	P-Bus polling request output
53	NC			Not used(Open)
54	$\overline{\text{ADENA}}$	O	C	A/D reference voltage supply control output
55	VDD			Power supply(+5V)
56	NC			Not used(Open)
57	VDSENS			VD power supply short sense input
58,59	NC			Not used(Open)
60	TEMP			Temperature sense input
61,62	NC			Not used(Open)
63	DSCSNS			Disc insert position sense input
64	AVDD			A/D analog power supply
65	AVREF			A/D reference voltage input
66	AVSS			A/D GND
67,68	NC			Not used(Open)
69,70	AVREF			VSS connection
71	$\overline{\text{TESTIN}}$	I		Test program start input
72-76	NC			VSS connection
77	$\overline{\text{BRST}}$			P-Bus reset input
78	NC			VSS connection
79,80	NC			Not used(Open)

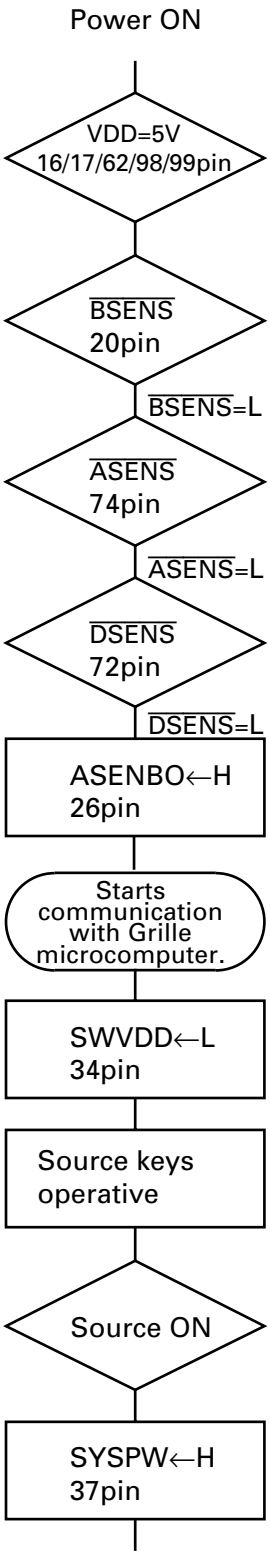
Format	Meaning
C	C MOS

● FM/AM Tuner Unit

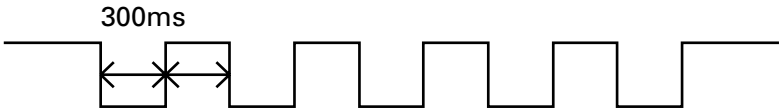


No.	Symbol	I/O	Explain	
1	STIND	O	stereo indicator	"Low" when the FM stereo signals are received. To be pulled up to the "VDD" at 47kΩ.
2	FMSD	O	FM station detector	"High" when signals are received. To be pulled up to the "VDD" at 47kΩ Meanwhile, 10kΩ should be used when taking diver FIX trigger from here and "High: 0.9VDD or more" and "Low: 250mV or less". (Should satisfy the diver IC specifications)
3	NL1	O	noise level-1	"High" when noise is received. Output for the RDS. GND at 47kΩ //1,800pF.
4	NL2	O	noise level-2	"High" when noise is received. Output for the RDS. GND at 36kΩ //330pF.
5	Rch	O	R channel output	FM stereo "R-ch" signal output or AM audio output. Add the specified di-emphasis constant.
6	Lch	O	L channel output	FM stereo "L-ch" signal output or AM audio output. Add the specified di-emphasis constant.
7	WC		write control	EEPROM write control. Writing permissible at "Low". Normally open.
8	SDBW	O	SD bandwidth	SD bandwidth signal output. For detection of detuning data for the RDS.
9	NC			Not used
10	VDD		power supply	Power supply pin for the digital section. D.C. 5V +/- 0.25V. Be careful about overlapping noise in the logic section.
11	DGND		digital ground	Grounding for the digital section.
12	CE2	I	chip enable-2	EEPROM chip enable. Active a "Low" To be pulled up to the "VDD" at 47kΩ
13	SL	I/O	signal level	Received FM/AM signal level (strength) output. Connect the specified load resistor and capacitor (10k Ω + 39k Ω //4,700pF)
14	DI/DO	I/O	data input/ data output	Data input/Data output To be pulled up to the "VDD" at 47kΩ
15	CK	I	clock	Clock input To be pulled up to the "VDD" at 47kΩ
16	CE1	I	chip enable-1	AF·RF chip enable. Active at "High" To be grounded at 47kΩ
17	NC			Not used
18	LDET	O	lock detector	Active at "Low". To be pulled up to the "VDD" at 47kΩ
19	CREQ	I	current request	Active at "Low". To be grounded at 47kΩ
20	NC			Not used
21	COMP	O	composite signal	FM composite signal output. r out < 100Ω
22	VCC		power supply	Analog section power supply pin.D.C.8.4V +/- 0.3V
23	LOCH	I	local high	FM local high pin. When seeking local high, apply 5V together with "LOCL".
24	FMLOCL	I	FM local low	FM local low pin. When seeking local low, apply 5V to the base of the NPN transistor with which the specified resistor is being connected to the emitter. Keep it open in case of ordinary marketed models.
25	LOCL	I	local low	FM/AM local low pin. When seeking local low, apply 5V to the base of the NPN transistor. Since this pin is exclusive for AM when the FMLOCL is in use, do not drive it under FM.
26	RFGND		RF ground	Grounding for the antenna section.
27	FMANT	I	FM antenna input	FM antenna input. 75Ω. Serge absorber (DSP-201M-S00B) is necessary.
28	AMANT	I	AM antenna input	AM antenna input. High impedance. Connect to the antenna through an L (LAU type) of 4.7μH.To cope with the power transmission line hums, insert a series circuit consisting of an L (a coil of about 100mH) + R (a resistor of 470 Ω to 2.2kΩ) between the GND.

7.3 OPERATIONAL FLOW CHART



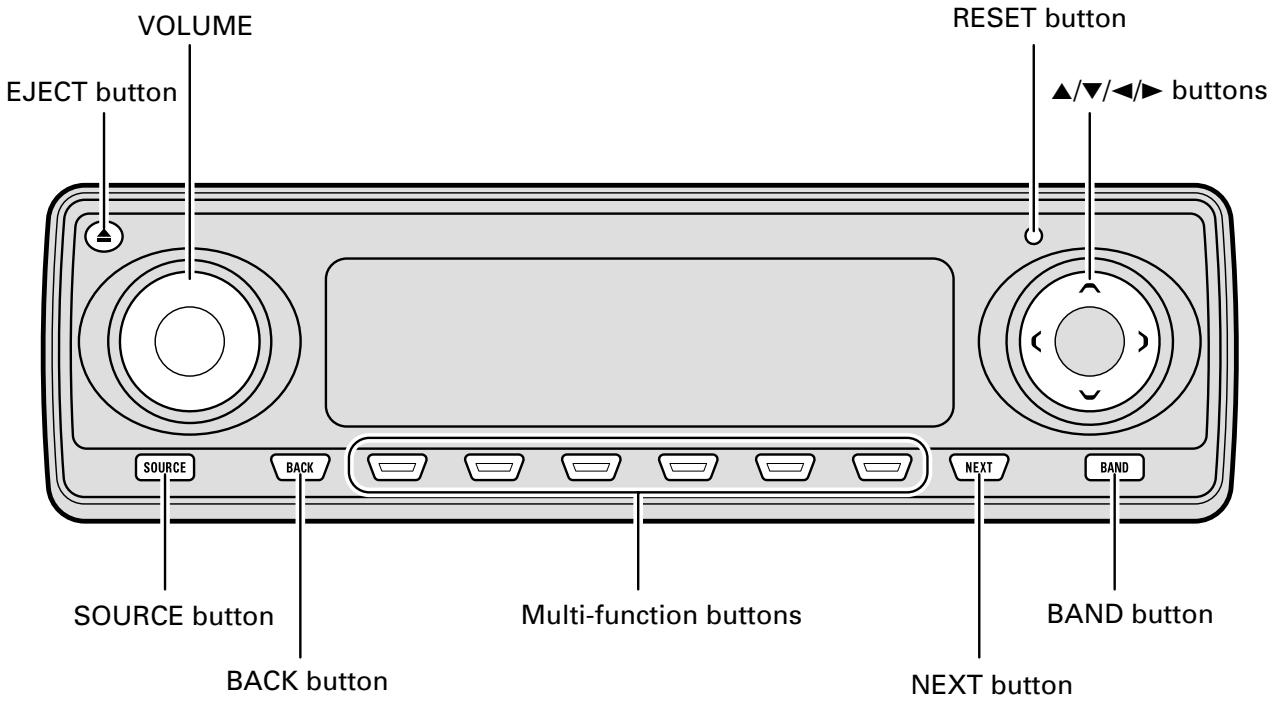
Completes power-on operation.
(After that, proceed to each source operation)



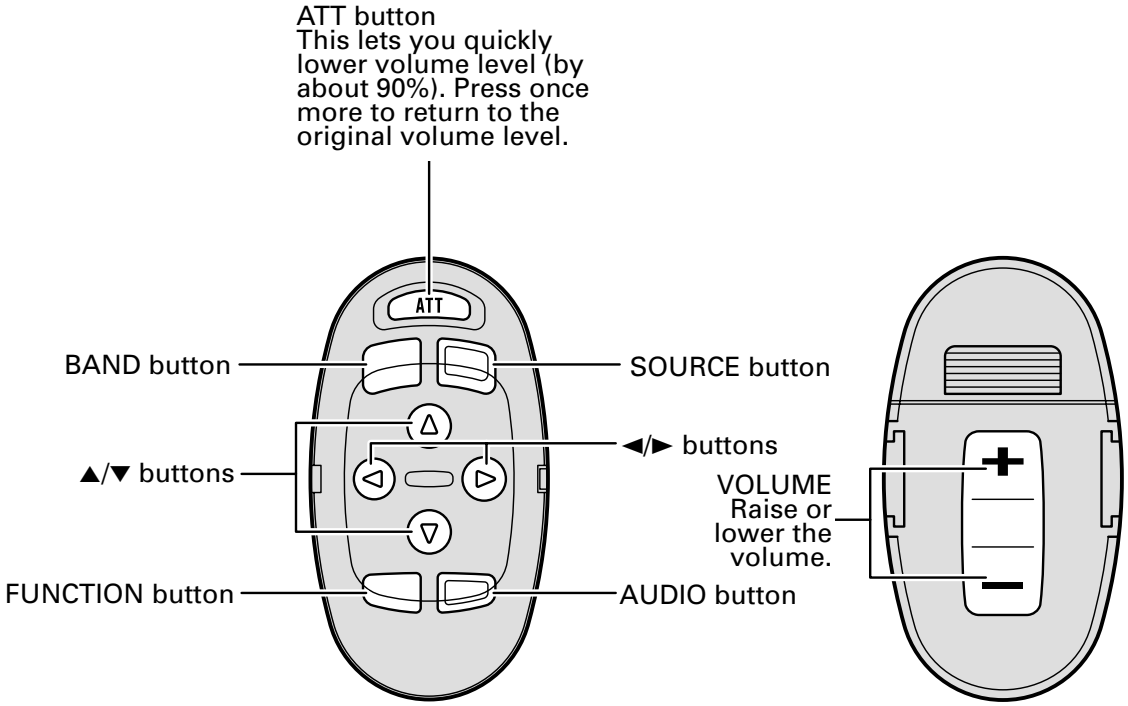
In case of the above signal, the communication with Grille microcomputer may fail.
If the time interval is not 300msec, the oscillator may be defective.

8. OPERATIONS AND SPECIFICATIONS

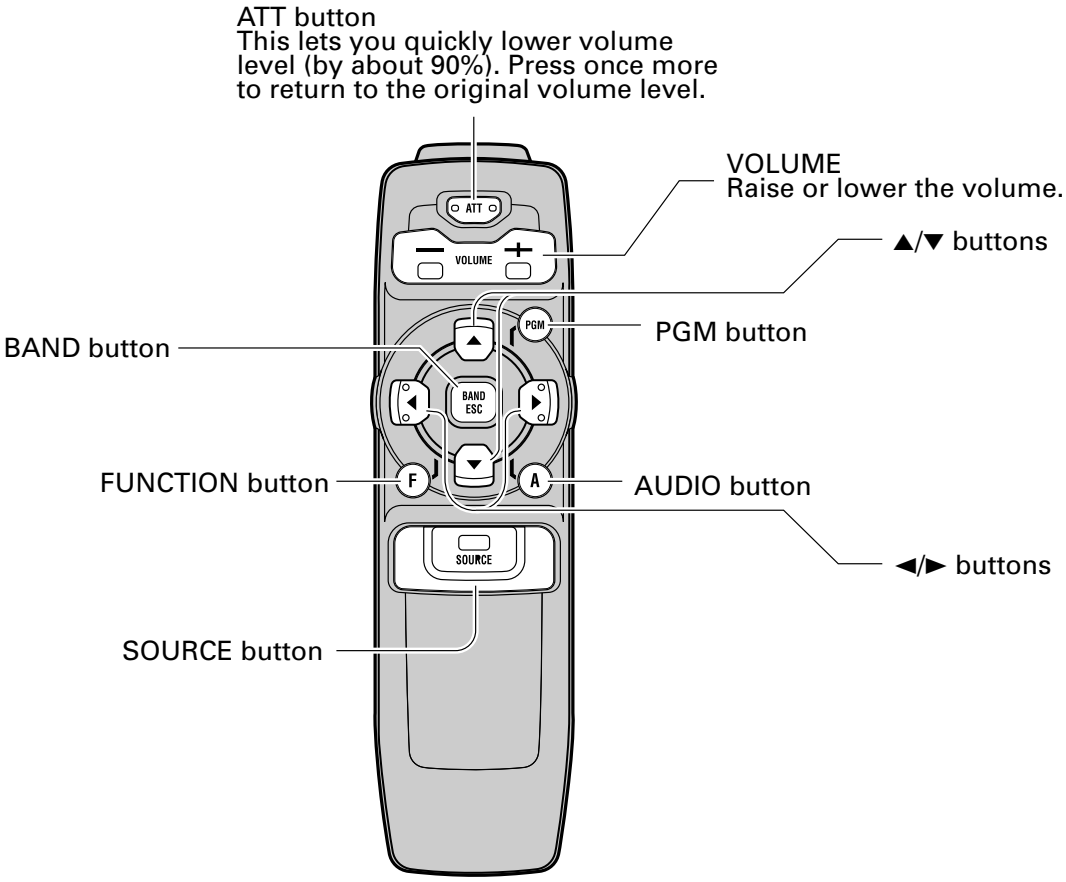
8.1 OPERATIONS



● **DEH-P930/UC, DEH-P9300/UC**



● **DEH-P9350/ES**


ATT button
This lets you quickly lower volume level (by about 90%). Press once more to return to the original volume level.
VOLUME
Raise or lower the volume.
▲/▼ buttons
PGM button
BAND button
FUNCTION button
AUDIO button
◄/► buttons
SOURCE button
ATT
VOLUME
PGM
BAND
ESC
F
A
SOURCE

Using the steering remote controller

Precaution:

- Do not operate this unit while manipulating the steering wheel as this might result in a traffic accident.
- If you have to operate this unit unavoidably when driving, pay careful attention to the road ahead to avoid the risk of being involved in a traffic accident.
- If any of the following problems occur, immediately stop using this unit and consult with the dealer from whom you purchased it:
  – the unit is smoking.
  – the unit is emitting an abnormal odor.
  – a foreign object has entered the unit.
  – liquid has been spilled on or into the unit.
  If you continue to use this unit without rectifying the problem, the unit may be damaged badly, resulting in a serious accident or fire.
- Do not leave this unit free (unattached) inside the car. When the car stops or turns a curve, the unit might drop on the floor. If the unit rolls under the brake pedal, it might prevent the driver from braking properly, causing serious trouble. Be sure to fix this unit to the steering wheel.
- Do not disassemble or modify this unit. To do so may cause a malfunction.

FUNCTION button and AUDIO button

Operation of the FUNCTION button and the AUDIO button on the remote controller differs from the operation of the FUNC button and the AUDIO button on the head unit. When operating the head unit, use the FUNC button and the AUDIO button to select the appropriate menu, then use the multi-function buttons to select the mode. When operating the remote controller, however, switch through the modes as described below to select the mode.

FUNCTION button operation

- **Press FUNCTION to select the desired mode (e.g., built-in CD player).**

  Press FUNCTION repeatedly to switch between the following modes:
  RPT ➞ RDM ➞ SCAN ➞ T.LIST ➞ PAUSE ➞ TTLin

AUDIO button operation

- **Press AUDIO to select the desired mode.**

  Press AUDIO repeatedly to switch between the following modes:
  F/B ➞ LOUD ➞ SFC ➞ EQ1 ➞ EQ2 ➞ ASL ➞ POSI ➞ T.AL1 ➞ T.AL2 ➞ SW1 ➞ SW2 ➞ HPF F ➞ HPF R ➞ SLA ➞ A.EQ ➞ D.ATT

Turning a source on or off

You can select the source you want to listen to. To switch to built-in CD player, load a CD in this product.

1. **Press SOURCE to select the desired source (e.g., tuner).**

   Press SOURCE repeatedly to switch between the following sources:
   Built-in CD player ➞ TV tuner ➞ Tuner ➞ DAB tuner ➞ Multi-CD player ➞ External unit 1 ➞ External unit 2 ➞ AUX ➞ Telephone standby

2. **Press VOLUME to extend the VOLUME outward.**
   - When you press VOLUME, it extends outward so that it becomes easier to turn. To retract VOLUME, press it again.
3. **Turn VOLUME to adjust the volume.**

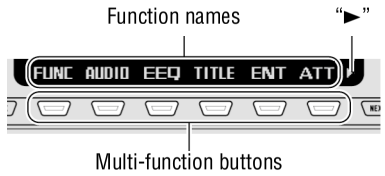
4. **Press and hold SOURCE to turn the source off.**

Note:

- External unit refers to a Pioneer product (such as one available in the future) that, although incompatible as a source, enables control of basic functions by this product. Two external units can be controlled by this product, although “External” is displayed whether you select external unit 1 or external unit 2. When two external units are connected, the allocation of them to external unit 1 or external unit 2 is automatically set by this product.
- In the following cases, the sound source will not change:
  * When no product corresponding to the source is connected to this product.
  * No disc is set in this product.
  * No magazine is set in the multi-CD player.
  * AUX (auxiliary setting) is set to off. * When the telephone standby is set to off.
- When this product’s blue/white lead is connected to the car’s auto-antenna relay control terminal, the car’s auto-antenna extends when this product’s source is switched on. To retract the antenna, switch the source off.

SOFT KEY operation

SOFT KEY operation means that the function of a button changes as indicated on the display. The multi-function buttons provide SOFT KEY operation; the functions performed by the buttons change according to the function or setting that has been selected.



The explanations given in this manual are based on FORM 1 display. If you have selected FORM 2, the functions of some of the multi-function buttons may be different from those indicated in the manual.

Important

In this manual, for operations using the multi-function buttons the function displayed is used as the name of the function button.

Switching the function of the multi-function buttons

The "►" indicator shows that the multi-function buttons have functions other than those currently displayed. When this indicator is visible, press NEXT to switch through the functions of the multi-function buttons.

- **Press NEXT to display the desired functions (e.g., built-in CD player).**

  Press NEXT repeatedly to switch between the following functions:

Note:
- The number of functions or displays switched through will differ according to the source or menu selected.
- When no function is indicated for a button, that button is not currently active.

Example of multi-function button operation

Here the "random play" function of the built-in CD player is used as an example to illustrate operation of the multi-function buttons.

1. **Press NEXT to display "FUNC".**

   Press NEXT repeatedly until "FUNC" appears.

2. **Press FUNC to enter the function menu.**

   With the switch to the function menu, the functions of the multi-function buttons also change simultaneously.

3. **Press RDM to select the random mode.**

4. **Press RDM to turn random play on.**

The light illuminates.

- Press RDM again to turn random play off. The light goes off.

5. **Press BACK to exit the function menu.**

   When the function menu is exited, the functions of the multi-function buttons also change simultaneously.

Note:
- You can also turn random play on or off by pressing ▲ or ▼ in the random mode.
- If you do not operate the function within about 30 seconds, the display is automatically returned.

The difference between the BAND button and the BACK button

BAND button

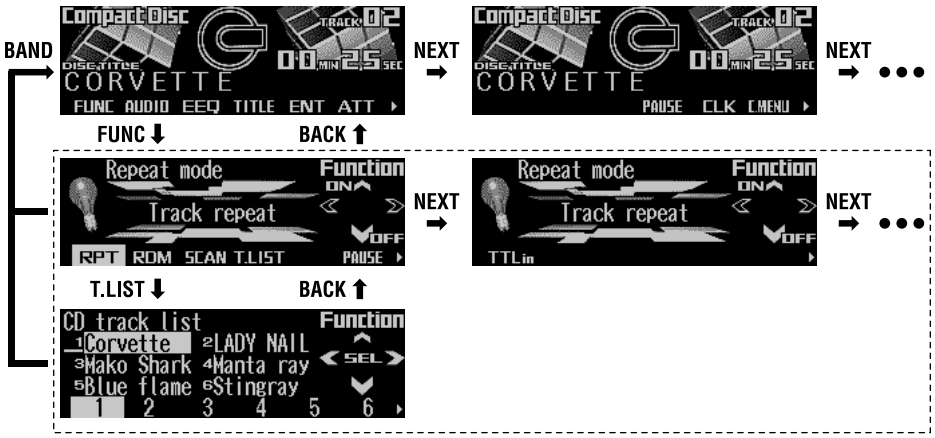
Pressing the BAND button immediately cancels the current menu or mode, and returns to the basic displays.

Note:
- When the source is the Tuner, TV tuner or DAB tuner and no menu or mode is selected, pressing the BAND button has the effect of switching bands.

BACK button

Pressing the BACK button cancels the current menu or mode and returns to the previously selected menu or mode.

Display example (e.g., built-in CD player)



Key guidance indicator

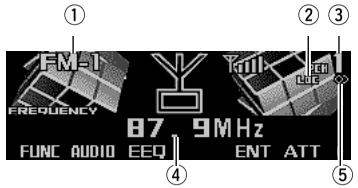
This product's display features key guidance indicators. These light to indicate which of the ▲/▼/◄/► buttons you can use. When you're in the function menu, audio menu or the other menus, they also make it easy to see which ▲/▼/◄/► buttons you can use to switch functions on/off, switch repeat selections and perform other operations.

Key guidance indicators

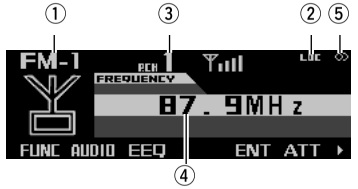
Note:
- In this manual, operation for each mode is given mainly in terms of the multi-function buttons. However, in each mode, when the key guidance indicators are lit it is also possible to use ▲/▼/◄/► to operate the mode.

Display and indicators

FORM 1



FORM 2



①Band
②LOC indicator
③Preset number
④Frequency
⑤Stereo indicator

Basic operation

1. **Press SOURCE to select the tuner.**
   Press SOURCE until “Tuner” appears.
2. **Press VOLUME to extend the VOLUME outward.**
   - When you press VOLUME, it extends outward so that it becomes easier to turn. To retract VOLUME, press it again.
3. **Turn VOLUME to adjust the volume.**
4. **Press BAND to select the desired band.**
   Press BAND repeatedly to switch between the following bands:
   FM-1 → FM-2 → FM-3 → AM
5. **Press ◄ or ► to tune in to a station.**
   The frequencies move up or down step by step.
   - If you press and hold ◄ or ► for about one second and release, you can perform seek tuning. Seek tuning lets you skip broadcasting stations until a broadcast strong enough for good reception is found.
   - If you press and hold ◄ or ►, you can skip broadcasting stations. Seek tuning starts as soon as you release the button.

Note:
- The stereo indicator “◯◯” lights when a stereo station is selected.

Storing and recalling broadcast stations

If you press any of the buttons 1 – 6, you can easily store up to six broadcast stations for later recall.

Storing broadcast stations

1. **Press NEXT to display “1” – “6”.**
   Press NEXT until “1” – “6” appears.
2. **When you find a station that you want to store in memory, press and hold any of the buttons 1 – 6 until the preset number stops flashing.**
   The station is stored in memory under the selected button.

Note:
- Up to 18 FM stations, six for each of the three FM bands, and six AM stations can be stored in memory.

Recalling broadcast stations

1. **Press NEXT to display “1” – “6”.**
   Press NEXT until “1” – “6” appears.
2. **Press any of the buttons 1 – 6 to recall a station preset under that button.**

Note:
- You can also use ▲ or ▼ to recall broadcast stations memorized in the buttons 1 – 6.

Tuner function menu

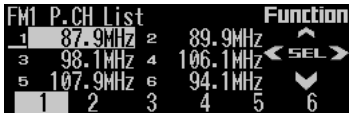
The tuner function menu has the following functions:

Note:
- If you do not operate the function within about 30 seconds, the display is automatically returned.

Storing the strongest broadcast stations

BSM (best stations memory) lets you automatically store the six strongest broadcast stations under the buttons 1 – 6.

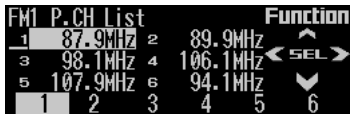
1. **Press FUNC to select the BSM mode.**
2. **Press BSM to turn the BSM on.**
   “Searching” appears. The six strongest broadcast stations will be stored under the buttons 1 – 6 and in order of their signal strength.
   When finished, “Searching” disappears and the display switches to the preset channel list mode.
   - To cancel the storage process before it is completed, press BSM again while “Searching” appears.
3. **Press any of the buttons 1 – 6 to recall the desired station.**



Selecting stations from the preset channel list

The preset channel list lets you see the list of preset stations and select one of them to receive.

1. **Press FUNC and then press chLIST to select the preset channel list mode.**
2. **Press any of the buttons 1 – 6 to recall the desired station.**



Note:
- You can also use ◄, ► and ▲ to select and recall the desired station.

Tuning in strong signals

Local seek tuning lets you tune in only those broadcast stations with sufficiently strong signals for good reception.

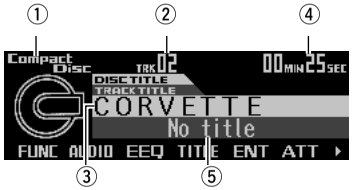
1. **Press FUNC and then press LOC to select the local mode.**
2. **Press LOC to set the local seek sensitivity.**
   Press LOC repeatedly to switch between the following settings:
   FM: Local OFF → Level 1 → Level 2 → Level 3 → Level 4
   AM: Local OFF → Level 1 → Level 2
   - When the local mode is exited except for “Local OFF” is selected, “LOC” appears on the basic display.

Note:
- The “Level 4” setting allows reception of only the strongest stations, while lower settings let you receive progressively weaker stations.

Display and indicators

FORM 1

FORM 2

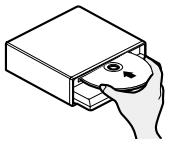


①Source name
②Track number
③Disc title
④Play time
⑤Track title

Basic operation

The built-in CD player plays one standard 12 cm or 8 cm (single) CD at a time. Do not use an adapter when playing an 8 cm CD.

1. **Press EJECT to open the front panel.**
2. **Insert a CD into the CD loading slot.**



When a CD is inserted, the front panel closes automatically.

3. **Press VOLUME to extend the VOLUME outward.**
   - When you press VOLUME, it extends outward so that it becomes easier to turn. To retract VOLUME, press it again.
4. **Turn VOLUME to adjust the volume.**
5. **Press ◄ or ► to select a track.**

   Pressing ► skips to the start of the next track.
   Pressing ◄ once skips to the start of the current track. Pressing again will skip to the previous track.
   - If you press and hold ◄ or ►, you can perform fast forward or reverse.
6. **Press EJECT to eject the CD.**

   The front panel opens and the CD is ejected.
   - Be sure to close the front panel by pressing EJECT after removing the CD.

⚠ WARNING:

- Do not use with the front panel left open. If the front panel is left open, it may result in injury in the event of an accident.

Note:

- You can select CD as the source by pressing SOURCE when a disc is loaded in this product.
- When the front panel is open, multi-function buttons are not available.
- Do not insert anything other than a CD into the CD loading slot.
- A CD left partially inserted after ejection may incur damage or fall out.
- If a CD cannot be inserted fully or playback fails, make sure the recorded side is down. Press the EJECT and check the disc for damage before reinserting it.
- If the built-in CD player cannot operate properly, an error message (such as “ERROR-14”) appears on the display.
- You can eject the CD by pressing and holding EJECT with opening the front panel when the CD loading or ejecting cannot operate properly.

Switching and scrolling the title

When playing a CD TEXT disc, you can switch text display such as artist name and track title. With text longer than 32 letters, you can scroll to see the rest of the text.

1. **Press TITLE to switch the title mode.**
2. **Press the corresponding button to display the desired title.**

FORM 1

Button	Operation
D.TTL	Displays disc title.
D.ART	Displays disc artist name.
T.TTL	Displays track title.
T.ART	Displays track artist name.
THNDR	Displays thunderbolt animation.
SCROLL	Scrolls the displayed title.

FORM 2

Button	Operation
TTL1	Displays disc title and track title.
TTL2	Displays disc title and disc artist name.
TTL3	Displays track title and track artist name.
SCROLL	Scrolls the displayed title.

Note:

- If you do not operate the function within about eight seconds, the display is automatically returned.
- You cannot use ◄ or ► to select a track in title mode.
- When you select the display form 2, the titles are displayed up to 24 letters long.
- A CD TEXT disc is a CD featuring recorded text information such as disc title, artist name and track title.
- If certain text information is not recorded on a CD TEXT disc, “No ~” (e.g., “No title”) is displayed.
- If you have not input disc titles, “No title” is displayed.

Built-in CD player function menu

The built-in CD player function menu has the following functions:

Note:

- If you do not operate the function within about 30 seconds, the display is automatically returned. (When you select the disc title input mode (TTLin), the display is not returned automatically.)
- “T.LIST” is displayed only when playing a CD TEXT disc.

Repeating play

Repeat play lets you hear the same track over again.

1. **Press FUNC to select the repeat mode.**
2. **Press RPT to turn the repeat play on.**

   The light illuminates. The track currently playing will play and then repeat.
   - Press RPT again to turn repeat play off.
   - When the repeat mode is exited while repeat play is on, “T.RPT” appears on the basic display.

Note:

- If you perform track search or fast forward/reverse, repeat play is automatically canceled.

Display and indicators

FORM 1

FORM 2

①Source name
②Disc number
③Track number
④Disc title
⑤Play time
⑥Track title

50-disc multi-CD player

Only those functions described in this manual are supported for 50-disc multi-CD players.

Basic operation

This product can control a multi-CD player, which is sold separately.

1. **Press SOURCE to select the multi-CD player.**

   Press SOURCE until “Multi-CD” appears.

2. **Press VOLUME to extend the VOLUME outward.**

   • When you press VOLUME, it extends outward so that it becomes easier to turn. To retract VOLUME, press it again.

3. **Turn VOLUME to adjust the volume.**

4. **Press ▲ or ▼ to select a disc.**

   A disc number for which there is no disc will be skipped.
   • You can use the buttons 1 – 6 (or 7 – 12) to select a disc directly.

5. **Press ◄ or ► to select a track.**

   Pressing ► skips to the start of the next track.
   Pressing ◄ once skips to the start of the current track. Pressing again will skip to the previous track.
   • If you press and hold ◄ or ►, you can perform fast forward or reverse.

Note:
• When the multi-CD player is performing the preparatory operations, “Ready” is displayed.
• If the multi-CD player cannot operate properly, an error message such as “ERROR-14” is displayed. Refer to the multi-CD player owner’s manual.
• If there are no discs in the multi-CD player magazine, “No disc” is displayed.

Selecting a disc directly

You can use the buttons 1 – 6 (or 7 – 12) to select a disc directly.

1. **Press NEXT to display “1” – “6” (or “7” – “12”).**

   Press NEXT until “1” – “6” (or “7” – “12”) appears.

2. **Press any of the buttons 1 – 6 (or 7 – 12) to select a disc located at 1 to 6 (or 7 to 12).**

Note:
• You cannot display “7” – “12” when a 6-disc multi-CD player is connected.

Switching and scrolling the title

When playing a CD TEXT disc on a CD TEXT compatible multi-CD player, you can switch text display such as artist name and track title. With text longer than 32 letters, you can scroll to see the rest of the text.

1. **Press TITLE to switch the title mode.**

2. **Press the corresponding button to display the desired title.**

FORM 1

Button	Operation
D.TTL	Displays disc title.
D.ART	Displays disc artist name.
T.TTL	Displays track title.
T.ART	Displays track artist name.
THNDR	Displays thunderbolt animation.
SCROLL	Scrolls the displayed title.

FORM 2

Button	Operation
TTL1	Displays disc title and track title.
TTL2	Displays disc title and disc artist name.
TTL3	Displays track title and track artist name.
SCROLL	Scrolls the displayed title.

Note:
• If you do not operate the function within about eight seconds, the display is automatically returned.
• You cannot use ▲/▼/◄/► to select a disc or track in title mode.
• When you select the display form 2, the titles are displayed up to 24 letters long.
• A CD TEXT disc is a CD featuring recorded text information such as disc title, artist name and track title.
• If certain text information is not recorded on a CD TEXT disc, “No ~” (e.g., “No title”) is displayed.
• If you have not input disc titles, “No title” is displayed.

Multi-CD player function menu

The multi-CD player function menu has the following functions:

Note:
• If you do not operate the function within about 30 seconds, the display is automatically returned. (When you select the disc title input mode (TTLin) or ITS memory mode (ITS.M), the display is not returned automatically.)
• “T.LIST” is displayed only when playing a CD TEXT disc on a CD TEXT compatible multi-CD player.

Repeating play

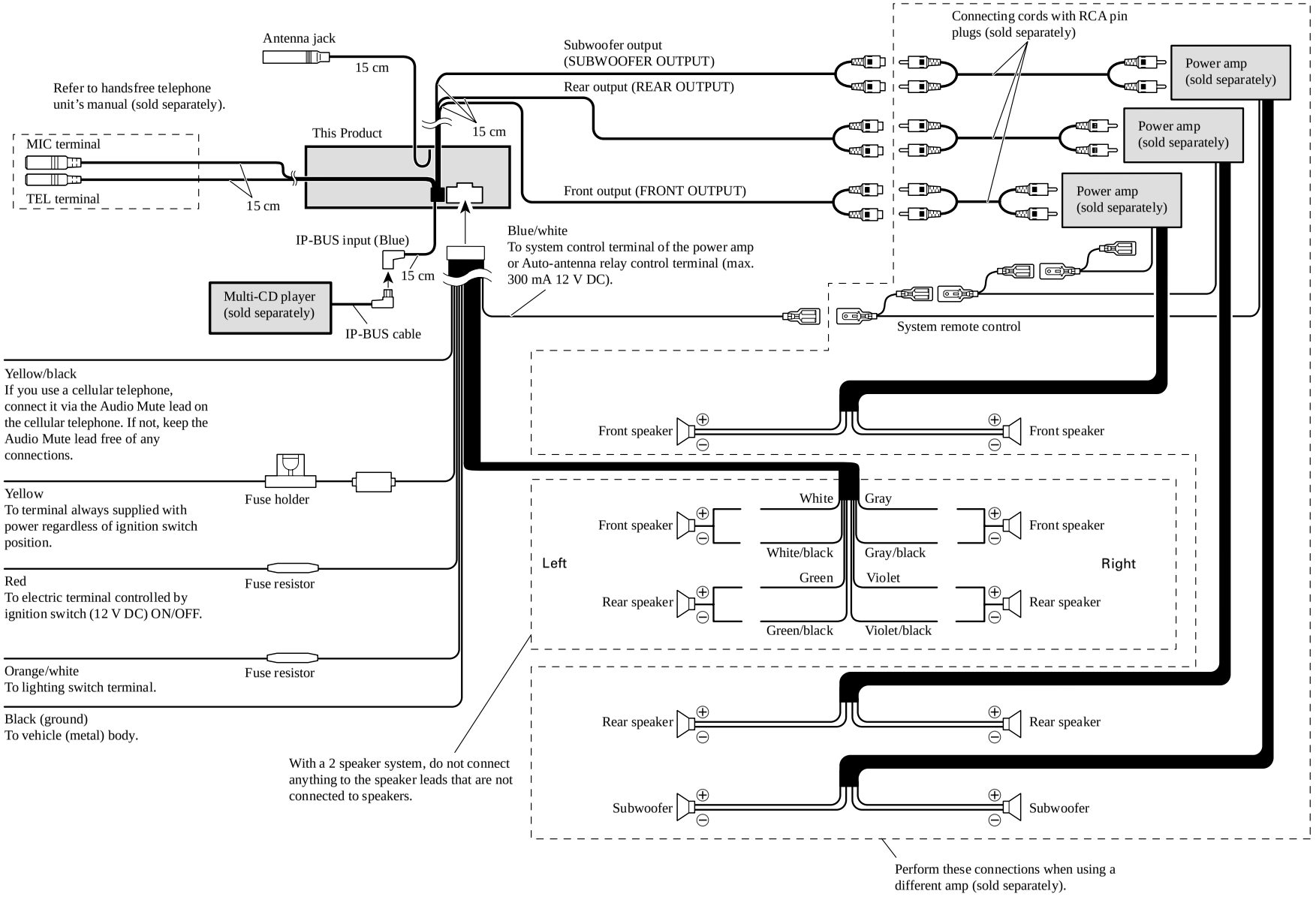
There are three repeat play ranges for the multi-CD player: one-track repeat, disc repeat and multi-CD player repeat.

1. **Press FUNC to select the repeat mode.**

2. **Press RPT to select the repeat range.**

   Press RPT repeatedly to switch between the following repeat ranges:
   Magazine repeat (multi-CD player repeat)
   → Track repeat (one-track repeat)
   → Disc repeat (disc repeat)
   • When the repeat mode is exited, either “T.RPT” or “D.RPT” may appear on the basic display.
   – “T.RPT” appears while the one-track repeat is selected.
   – “D.RPT” appears while the disc repeat is selected.

Note:
• If you select other discs during repeat play, the repeat range changes to multi-CD player repeat.
• If you perform track search or fast forward/reverse during one-track repeat, the repeat range changes to disc repeat.


Antenna jack
15 cm
Refer to handsfree telephone unit's manual (sold separately).
MIC terminal
TEL terminal
15 cm
This Product
15 cm
Subwoofer output (SUBWOOFER OUTPUT)
Rear output (REAR OUTPUT)
Front output (FRONT OUTPUT)
Connecting cords with RCA pin plugs (sold separately)
Power amp (sold separately)
Power amp (sold separately)
Power amp (sold separately)
IP-BUS input (Blue)
15 cm
Blue/white
To system control terminal of the power amp or Auto-antenna relay control terminal (max. 300 mA 12 V DC).
Multi-CD player (sold separately)
IP-BUS cable
System remote control
Yellow/black
If you use a cellular telephone, connect it via the Audio Mute lead on the cellular telephone. If not, keep the Audio Mute lead free of any connections.
Yellow
To terminal always supplied with power regardless of ignition switch position.
Fuse holder
Red
To electric terminal controlled by ignition switch (12 V DC) ON/OFF.
Fuse resistor
Orange/white
To lighting switch terminal.
Fuse resistor
Black (ground)
To vehicle (metal) body.
Front speaker
Front speaker
White
Gray
Front speaker
Front speaker
White/black
Gray/black
Left
Right
Green
Violet
Rear speaker
Rear speaker
Green/black
Violet/black
Rear speaker
Rear speaker
Subwoofer
Subwoofer
With a 2 speaker system, do not connect anything to the speaker leads that are not connected to speakers.
Perform these connections when using a different amp (sold separately).

8.2 SPECIFICATIONS

Specifications

General

Power source ..... 14.4 V DC (10.8 – 15.1 V allowable)
Backup current ..... Less than 6 mA
Grounding system ..... Negative type
Max. current consumption ..... 10.0 A
Dimensions
(DIN) (chassis) ..... 178 (W) × 50 (H) × 157 (D) mm
[7 (W) × 2 (H) × 6-1/8 (D) in.]
(nose) ..... 188 (W) × 58 (H) × 24 (D) mm
[7-3/8 (W) × 2-1/4 (H) × 1 (D) in.]
(D) (chassis) ..... 178 (W) × 50 (H) × 162 (D) mm
[7 (W) × 2 (H) × 6-3/8 (D) in.]
(nose) ..... 170 (W) × 45 (H) × 19 (D) mm
[6-3/4 (W) × 1-3/4 (H) × 3/4 (D) in.]
Weight ..... 1.7 kg (3.7 lbs.)

Audio/DSP

Continuous power output is 22 W per channel min. into 4 ohms, both channels driven 50 to 15,000 Hz with no more than 5% THD.
Maximum power output ..... 50 W × 4
Load impedance ..... 4 Ω (4 – 8 Ω allowable)
Preout maximum output level/
output impedance (DEH-P930/UC) ..... 6.5 V/100 Ω
output impedance (DEH-P9300/UC) ..... 4.0 V/100 Ω
output impedance (DEH-P9350/ES) ..... 4.0 V/100 Ω
Loudness contour ..... +10 dB (100 Hz), +6.5 dB (10 kHz)
(volume: –30 dB)
Equalizer (13-Band Graphic Equalizer)
Frequency ..... 50/80/125/200/315/500/800 Hz
1.25/2/3.15/5/8/12.5 kHz
Equalization range ..... ±12 dB (2 dB)
Auto Equalizer (Front & Rear & Subwoofer 13-Band Graphic)
Frequency ..... 50/80/125/200/315/500/800 Hz
1.25/2/3.15/5/8/12.5 kHz
Equalization range ..... +6 — –12 dB (2 dB)
Network
HPF (Front/Rear)
Frequency ..... 50/63/80/100/125 Hz
Slope ..... –12 dB/oct.
Subwoofer output
Frequency ..... 50/63/80/100/125 Hz
Slope ..... –18 dB/oct.
Gain ..... –24 dB — +6 dB (1 dB)
Phase ..... Normal/Reverse

CD player

System ..... Compact disc audio system
Usable discs ..... Compact disc
Signal format ..... Sampling frequency: 44.1 kHz
Number of quantization bits: 16; linear
Frequency characteristics ..... 5 – 20,000 Hz (±1 dB)
Signal-to-noise ratio ..... 94 dB (1 kHz) (IHF-A network)
Dynamic range ..... 92 dB (1 kHz)
Number of channels ..... 2 (stereo)

FM tuner (UC models)

Frequency range ..... 87.9 – 107.9 MHz
Usable sensitivity ..... 9 dBf
(0.8 μV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity ..... 15 dBf (1.5 μV/75 Ω, mono)
Signal-to-noise ratio ..... 70 dB (IHF-A network)
Distortion ..... 0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response ..... 30 – 15,000 Hz (±3 dB)
Stereo separation ..... 40 dB (at 65 dBf, 1 kHz)
Selectivity ..... 70 dB (2ACA)
Three-signal intermodulation
(desired signal level) ..... 30 dBf
(two undesired signal level: 100 dBf)

FM tuner (ES model)

Frequency range ..... 87.5 – 108 MHz
Usable sensitivity ..... 9 dBf
(0.8 μV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity ..... 15 dBf
(1.5 μV/75 Ω, mono)
Signal-to-noise ratio ..... 70 dB (IEC-A network)
Distortion ..... 0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response ..... 30 – 15,000 Hz (±3 dB)
Stereo separation ..... 40 dB (at 65 dBf, 1 kHz)

AM tuner (UC models)

Frequency range ..... 530 – 1,710 kHz (10 kHz)
Usable sensitivity ..... 18 μV (S/N: 20 dB)
Selectivity ..... 50 dB (±10 kHz)

AM tuner (ES model)

Frequency range ..... 531 – 1,602 kHz (9 kHz)
530 – 1,640 kHz (10 kHz)
Usable sensitivity ..... 18 μV (S/N: 20 dB)
Selectivity ..... 50 dB (±9 kHz)
50 dB (±10 kHz)

Note:

- Specifications and design are subject to modification without notice for the sake of improvements.